An Address
ON THE
DUTIES OF THE STATE IN REGARD TO TUBERCULOSIS.

DELIVERED BEFORE THE MANCHESTER MEDICO-ETHICAL ASSOCIATION.

BY

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I DO not think that the State should undertake the treatment of disease. It should rather turn its attention in the direction of its prevention. Indeed, the results of many other enterprises undertaken by the State or by municipal authorities prove that it is improbable in the highest degree that State officials can succeed in the treatment of tuberculosis as well as do at present the several voluntary agencies. It is possible that the State may rightly concern itself with the medical treatment of its own employees, as in the Post Office or in the navy and army; but, even for them, this work will probably be better carried out by men who are not under State supervision. Again, it will be said that the State necessarily provides medical treatment for those unfortunate persons who, owing to poverty, are, as paupers, entirely dependent upon the State; and this is true. But who will say that the Poor Law medical service is a model of what medical treatment by the State ought to be? Is not this very service an object lesson as to the results that are likely to follow when the State goes out of its province and tries to undertake the treatment of disease? Notwithstanding the noble and self-sacrificing conduct of many Poor Law medical officers, this department of medical practice is undoubtedly the lowest and the worst. It is degrading to the doctor, and it is unwelcome to his patients. It is degrading to the doctor because he is compelled to attend people who have no confidence in him; and it is unwelcome to the poor because the doctor is imposed upon them by the State, and because they have no choice as to whom they should have to attend them. If there be any one who doubts these statements let him read the report of the Poor Law Commission of 1909. He will find that it is full of evidence of the unsatisfactory nature of this sample of State interference with medical treatment.

I shall inflict upon you only one or two samples of this evidence.

1. That the present plan of medically assisting the poor under the Poor Law is not an efficient system. (*Report of Poor Law Commission*, 1909, Q. 42509, par. 2.)
2. That in too many unions outdoor medical relief begins and ends with a bottle of medicine, and that the bottle of physic is a very curse. It is responsible for what may be called the mortality of delay. (*The State and the Doctor*, p. 83.)
3. That under the Poor Law there is practically no sanitary supervision of phthisis in the home of the patient. . . . Phthisis cases are maintained in crowded, unventilated houses. It is not regarded as any part of the duty of the district medical officer to take any steps to prevent disease, either in the way of recurrence in the same patient, or in its spread to other persons. (Ibid., p. 84.)

From first to last, in short, the outdoor medical service of the Poor Law has no conception of the public health point of view.

Much the same conclusions are reached when we consider the indoor treatment of paupers by the State; but on this point I will only quote a few passages from *The State and the Doctor:*

The best Poor Law infirmary falls markedly below the standard of the London hospitals.

It is, we think, impossible to avoid the conclusion that the Medical Branch of the Poor Law, now becoming an exceedingly costly service, is, at almost all points, in a far from satisfactory condition.

In short, from the beginning to the end of a Poor Law expenditure of over £4,000,000 annually upon the sick, there is no thought of promoting medical science or medical education, practically no idea of preventing the spread of disease, and little consideration of how to prevent its recurrence in the individual. (P. 128.)

Lastly:

To take the sick out of the Poor Law is, as we now see, the only way to put an end to what has inevitably a bad psychological reaction on personal character. (P. 260.)

The case is entirely different with regard to the public health service. Neither with the work of its officials, nor with the numerous hospitals under its control, now spread all over the country, is there any fault to be found; but, surely, this result must be ascribed to the fact that here the State is attending mainly to its legitimate business, and is endeavouring not to *cure*, but to *prevent*, the spread of disease.

Under the crude and ill-considered clauses of the Insurance Act, however, it seems certain that an attempt is again to be made by the State at the treatment of tuberculosis, as well as of other diseases. Moreover, though it is somewhat difficult to find our way amongst the mazes of this Act, it seems probable that this treatment is to be carried out under very doubtful conditions.

In the first place, the ordinary treatment of a consumptive patient is to be conducted under the odious "contract" system, a system which has notoriously failed in the instances of Poor Law and of club practice. On this point I fully endorse what has been said by Dr. Buttar in his recent letter to the *Morning Post* (September 16th, 1912):

It is a pity that legislators who embark on revolutionary methods, such as the Insurance Act, do not, in the first place, get their minds thoroughly impressed with certain truths, such as the following. All contract practice is bad; some contract practice is necessary; therefore, keep your contract practice within the smallest limits possible; and State service, though sometimes necessary, is not ideal. Therefore, foster rather the healthy growth of a natural system, that has developed in the course of ages, altering it gently only in such conditions as quite preclude its use.

Again, though an enormous sum has to be put aside for the establishment of sanatoriums and, perhaps, of dispensaries, these institutions will have to be mainly under the control of local Insurance Committees, who will be for the most part ignorant of medical science. The medical attendants of the institutions will be appointed by these authorities, and there will be no certainty that the doctors chosen will be competent to undertake the treatment of the multifarious forms of tuberculosis. Their chief recommendation to office will most likely be their acquaintance with some member or other of the local authority.

Much of the money assigned for the purpose of the sanatoriums and of other objects will be wasted in various ways, especially in the erection of State buildings and in the carrying out of local "fads." We may be very sure that the local Medical Committees, appointed as a sop to Cerberus, will have very little voice in the matter. Hitherto our medical brethren seem to have hesitated to criticize this part of the chaotic scheme laid before them, partly, perhaps, because it is the most popular part of the Act and partly because of the proverb against looking a gift horse in the mouth. Certainly the Royal College of Physicians expressly excluded sanatoriums from their purview when the bill was submitted to their consideration, and other associations of medical men have taken the same course. It is, however, very important that the subject should be seriously dealt with by medical critics before it is too late and before the funds assigned for the purpose are in process of being squandered.

These illustrations may, perhaps, suffice to show that, in these several cases at least, the State has failed to take up efficiently the treatment of disease, especially of tuberculosis; and that, in the plans adumbrated by the Insurance Act, it is equally certain to fail.

In its ill-advised efforts the State is, in fact, departing from the wise counsels of that great political economist, John Stuart Mill, and is establishing permanent machinery to do work that could be better done in the future by voluntary agencies. Thus, in his monumental work on *Political Economy*, he says (vol. ii, p. 607):

A good Government will give all its aid in such shape as to encourage and nurture any rudiments it may find of a spirit of individual exertion.

And again:

Government aid, when given merely in default of private enterprise, should be so given as to be, as far as possible, a

course of education for the people in the art of accomplishing great objects by individual energy and voluntary co-operation.*

What, then, are the duties of the State in this regard? I venture to assert that they are summed up in the one word *prevention*.

Unquestionably, one of the most important duties of a State is the prevention of all disease that has been proved by medical science to be preventable. Happily, in this country this duty has not been neglected so far as most of the so-called zymotic diseases are concerned. Many hundred thousand lives have thus been saved by the energy of our public health services.

It is, however, only within recent years that tuberculosis has been fully recognized as a preventable disease, and still more recently that it has come to rank as an infectious disease. It is true that in Italy and some other warm countries consumption has been reckoned for many years an infectious disease; but it was not until Villemin, in 1865, proved the fact by direct experiment, that it can be said to have fairly taken its place among the infectious disorders.

There are, however, several points in relation to the infectivity of tubercle which must be taken into account in considering the duties of the State in regard to its prevention. These points are, in brief:

1. First, the tenacity of life of the bacillus of tubercle, when fed with suitable material, and when left for long periods under what are known as unsanitary conditions.
2. Its resistance to ordinary disinfectants, to putrefaction, freezing and thawing, etc.
3. Its rapid loss of virulence under the influence of fresh air and sunlight.
4. The incubation period, and the temperature of growth, of the organism. It is no longer regarded as a pure parasite, existing only at the temperatures of the mammalian body. Many observers have now succeeded in growing it within wide ranges of temperature; and I have myself grown it in the condensed vapour of human breath, and in that from ground air, at ordinary English spring and summer temperatures.
5. The infectivity of tuberculous dust, under differing circumstances of light and air.
6. The association of the bacillus of tubercle with other organisms, such as the *tetragonus*, and various other cocci.
7. The varying powers of resistance to infection offered by the human body. And, lastly,
8. The researches as to the relations between bovine and human tuberculosis.

All these subjects have now been carefully studied, and will have to be taken into account in any concerted scheme for the prevention of the disease.

It must never be forgotten that infection by tubercle is conditional, and that the conditions under which it can take place are mainly three. They are: (1) The presence of a virulent form of the bacillus; (2) a susceptible body to receive it; and (3) such external circumstances as are favourable to infection.

Unless all these conditions are present it is unlikely that the disease will spread infectively through any community. Even when both the bacillus and a susceptible person are present, if the surrounding circumstances be such that the virulence of the microbe is destroyed before it can reach its victim, then no infection will take place.

There are, therefore, at least three distinct directions in which the State can employ its energies in the campaign against tuberculosis:

1. It can take practical measures to abolish the bacillus.
2. It can so improve the physical condition of the people as to diminish their susceptibility to the disease; and
3. Most important of all, it can so amend its favourite haunts as to destroy its power for evil.

These, certainly, are no easy tasks to set before the State, but they are none of them impossible; and the mere attempt to carry them out must end in the amelioration and lessening of the disease. We will consider them in order.

*My friend, Mr. J. W. Sharpe, has called my attention to the fact that Herbert Spencer is equally strong against the interference of the State with private concerns, especially by coercion. He quotes as follows from *Facts and Comments*, p. 24 (ed. 1902): "The notion that a society is a manufacture, and not an evolution, vitiates political thinking at large, leading to the belief that only by coercion can benefits be achieved. Is an evil shown? then it must be suppressed by law. Is a good thing suggested? then let it be compassed by an Act of Parliament."

1. *The Destruction of the Bacillus of Tubercle.*

It was perhaps natural that, immediately after Koch's discovery of the specific germ of tubercle, and after the proofs of its infectivity which he adduced, a popular cry should have been raised for stringent measures against infection. It was already known that the disease is very rarely congenital, and therefore it followed that nearly all of the 300,000 persons then suffering from it in England must have contracted the deadly complaint either directly from some other invalids, or indirectly by infection from tuberculous dust. It was logical to conclude that, if all these sufferers were treated like lepers and shut off from the rest of the community, and if other sources of infection such as tuberculous meat or milk were stopped, the disease would soon cease to exist, and the problem of its prevention would be solved.

There arose, accordingly, loud demands for compulsory notification of all cases of tuberculosis; the penalization of spitting; gratuitous examination of sputum, etc., for the bacillus; disinfection of the dwellings and clothing of tuberculous persons; the provision of sanatoriums and of "homes for advanced cases," of dispensaries, and of colonies for quiescent cases. The State supervision of all cattle, and the formation of non-tuberculous herds, were also called for.

These measures are indeed all of them likely to be of great use, and will probably all have to be brought judiciously into action, sooner or later; but these reformers have underrated the difficulties in the way of their task. Moreover, in some respects they go beyond, and in others they fall short of, the requirements of the case. Thus, if they were applied without discrimination to all cases of tuberculosis, they would inflict sore punishment upon many perfectly harmless individuals, and would brand them as if they were lepers. Dr. Koch himself, in his last Nobel Lecture, sums up the case thus:

> Patients with closed tuberculosis are to be regarded as quite harmless. Even those who suffer from open tuberculosis are harmless so long as the tubercle bacilli expelled by them are prevented by cleanliness, airing, etc., from infecting. The patient becomes dangerous only when he is personally uncleanly, or becomes so helpless in consequence of the far-advanced disease that he can no longer see to the suitable removal of the sputa. For the healthy the danger of infection increases with the impossibility of avoiding the immediate neighbourhood of a dangerous patient—that is, in densely inhabited rooms; and quite specially if the latter are not only overcrowded but also badly ventilated and inadequately lighted.

The case could hardly be better put. Moreover, on the other hand, they would only remove some of the sources of infection, and would leave many others almost untouched. They would not cope with the dangers arising from the cases of incipient or of "walking" phthisis, nor from those who, if the measures were insisted upon, would undoubtedly hide the nature of their complaint.

They would also leave the most frequent sources of infection untouched. They would probably be of use to diminish the number of infecting persons, but they would do little to meet the many sources of ill health or of other diseases, which prepare the way for the attack of the germs that had escaped the net, and which would continue to be only too abundant in unhealthy surroundings.

The State would therefore have to resort to further measures, and it should at least consider whether it were possible to do anything to diminish the second condition of infection—namely:

2. *The Susceptibility to Infection by Tubercle.*

It is not necessary to inflict upon you a discussion of the various forms of susceptibility to tubercle, whether inherited, constitutional, or acquired. It will be sufficient to point out that, though this condition of infection is difficult to remove entirely, it may be greatly mitigated.

With healthier homes, purer air in workshops and in places of public assembly, absence of microbic dusts, with better food and less alcoholic drinking—and all these reforms are attainable under wise governance—there would assuredly be fewer hosts for malignant guests in the shape of pathogenic microbes.

The measures that the State can take to mitigate the second condition of infection by tubercle are, therefore, identical with those required to meet the third—namely:

3. *The Removal of Unhealthy Surroundings.*

The State is fully competent to deal with this part of the subject; and again its duty may be stated in one word—sanitation.

First, by the provision of healthy homes. Tuberculosis has been rightly termed a "house disease." I have myself shown in my paper on tuberculous infective areas, published in 1888, that the disease clings to certain districts in Manchester and Salford, and even to certain houses, and similar observations have been made by Dr. Niven and by Dr. Flick of Philadelphia. Dr. Flick says: "Of all diseases, tuberculosis, more than any other, is a house disease. It is implanted in the house, develops in the house, and it matures in the house."

Dr. Koch, also, in his Nobel Lecture, remarks: "Tuberculosis has been frankly and justly called a dwelling disease."

Obviously, then, the first duty of the State is to see that the people are healthily housed; and not only must the houses themselves be properly constructed, under stringent "building by-laws," but, by wise "town planning," by the destruction of neighbouring unsanitary property, by proper drainage and water supply, and by other measures, the air that circulates around these houses must be kept pure, and all such sunlight as this country affords must have full play upon them.

Fresh air and sunlight are the best disinfectants for the virus of tubercle; and it is therefore the duty of the State to see that these important requisites are provided so far as may be possible. No one can, indeed, be compelled to open the windows of a dwelling, but householders can at least be tempted to do so by securing for them as far as possible the purity of the outside atmosphere.

The subject of ventilation as regards the prevention of tuberculosis is a very large one. It is probable that in confined air there exists some special nutriment which either serves to prolong the life of the bacillus or which increases its virulent properties, this special element being either the organic matter exhaled from human bodies or the emanations from polluted ground air or from badly drained subsoils.

It follows, therefore, that the State must not only make provision for cubic space in dwellings and for the admission of so many cubic feet of air to them, but that it must also see that this air is fairly pure, and that the ventilation shall sweep away "air sewage" from these rooms and from all places where human and other beings congregate. Hence, also, in town planning, and in the reconstruction of unhealthy areas, free course must be given to the winds of heaven; there must be no blind alleys or courts, and any pollution of the atmosphere must, as far as possible, be mitigated.

The ventilation not only of schools but of all places of public resort—such as churches, chapels, theatres, even of public houses, restaurants, and shops—must be placed under State control; and all work-places and factories must be kept as clean as possible and well supplied with fresh air.*

The height of buildings in the streets must be correlated with their width; and ample "lung space" must be provided in the shape of public parks and playgrounds.

The State will also be strictly within the scope of its legitimate action if it provide for the dangerous cases of open tuberculosis, if it subsidizes homes for the dying and tuberculosis dispensaries, and if it assists the formation of herds of cattle, free from disease, as has been done in Denmark. But again I venture to protest against its meddling with the treatment of the disease in any of these cases.

In concluding this address, pray let me apologize for having once again repeated what has already been many times told. I am conscious that I have been preaching a very old sermon; but, in mitigation of my offence, let me plead that my remarks have really been addressed to our rulers, that the State is well known to be very thick-headed, and that, as Jan Ridd said of the Devon folk, "At Oare, you must say a thing three times, very slowly, before it gets inside of the skull of the good man you are addressing."

* With reference to the last-mentioned places, I cannot help turning aside for a moment to complain of the recent retrograde step taken by the present Home Office in lowering the standard of ventilation of work-places and factories, which had been fixed by a former Committee of this Office. In place of restricting the amount of respiratory impurity, 9 vols. of CO_2 per 10,000 vols. of air, they now permit 11 vols. This is distinctly a retrograde step.

TUBERCULOSIS IN GENERAL PRACTICE.

WITH SPECIAL REGARD TO TUBERCULIN TREATMENT.

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The question whether tuberculin can be looked upon as a rational therapeutic measure or not is still being thrashed out, but any one who has had any experience of this method must have realized its undoubted value. For the last two years I have had the opportunity of treating a fair number of cases of tuberculosis, and in consequence I have dipped somewhat deeply into the subject to gain as much knowledge of its management as possible. The progress in the knowledge and administration of tuberculin has been very marked within the last two years or so. Tuberculin must not be looked upon as the Alpha and Omega of treatment—it is an adjunct, and a very important one; in fact, one may go so far as to put it in the very forefront of therapeutic measures. One thing is certain: no practitioner is justified in undertaking vaccine-therapy without a good knowledge of, at any rate, the theory of immunity.

When tuberculosis follows on such diseases as whooping-cough, measles, etc., latency must always be kept in mind. Pleurisy is one of the most insidious diseases of a tuberculous nature in its development. An exciting cause of tuberculosis is excessive indulgence in *alcohol;* his lowered vitality makes the alcoholic an easy victim. In addition he passes on a susceptibility to tuberculosis to his offspring (Lauder Brunton).

Urinary Tuberculosis.

I have had two cases under my care: one showed improvement for a time, but relapsed and left off coming to the hospital; the other is still under my care at his home. In both cases the tubercle bacillus was present. If the kidneys are severely affected tuberculin may not only be useless, but, so far as we know at present, harmful.

In wide areas of infection of the bladder Pardoe found tuberculin not successful; the reason for this may be that these cases are mixed infections; the early and circumscribed are likely to be pure cases of tuberculosis, and in these better results may be looked for. Pardoe found that he got a site reaction more or less severe depending upon the dose. He found that the local condition was hyperaemia or deep congestion, which might be followed by sloughing. If the ureters are both affected suppression after large doses is a natural consequence, but with present day knowledge should never be possible. All cases of renal tuberculosis should be examined with the cystoscope.

Glandular Tuberculosis.

In the case of the cervical, those most commonly affected, the seat of infection is invariably in the nose and throat. When bronchial glands are affected, the superficial veins, tributaries of the intercostal veins, are prominent. There is usually a dry cough and some rise of temperature. In cases in which the abdominal glands are affected, if they cannot be felt, in addition to the usual constitutional symptoms, flatulence and prominence of superficial veins, either in the portal area or that of the inferior vena cava, may be observed. This was well shown in the case of an adult whom Sir Lauder Brunton was good enough to see with me. All these glands cases do well under tuberculin.

Tuberculosis of the Skin—Lupus Erythematosus and Vulgaris.

These cases yield more readily to tuberculin treatment if the temperature is normal or subnormal than when the temperature is raised. I have not observed a rise of temperature in lupus erythematosus, but I have seen a case of lupus vulgaris with a temperature of 99°; the patient had been under the light treatment in London. After cessation of light treatment for a short time the condition relapsed rapidly, but is now yielding to tuberculin treatment. A low opsonic index in lupus is an indication for tuberculin treatment; a high opsonic index indicates light treatment (Bulloch). A case of lupus of the interior of the nose affecting the inferior turbinate has improved, but is yielding very slowly. The most gratifying result I have

ever had has been in an eye case, the condition yielding readily to treatment, all constitutional signs disappearing rapidly. In another eye case complicated with lupus erythematosus the eye symptoms have cleared up, and the lupus erythematosus is yielding.

Joint.

I have had one case of tuberculosis of the knee-joint, in which relief of pain and general improvement followed the use of tuberculin and the patient was able to return to his business.

General Treatment.

As the nose and throat form one of the points of attack of the tubercle bacillus, proper attention should be paid to this area. Enlarged tonsils and adenoids, when present obtrusively, should be removed. The individual should be taught how to breathe; he should be advised as to his clothing, which should be warm and light. In the case of the poor the question of housing is difficult of solution. All that they can be recommended is to keep their windows wide open night and day, to do away with all carpets with the exception of a bedside mat, to wash floors with some antiseptic once a week, to fold all clothes and not hang them up, to have no curtains, and to wash all bedclothes at least once a fortnight; exercise should be regulated according to the temperature, and due attention paid to body cleanliness. All milk should be boiled and food generally well cooked. These may appear trivial details, but it is astonishing how necessary they are. The district nurse takes their temperature daily and records it.

I am unable to express a very definite opinion in favour of sanatorium treatment for the poor, except in the very early cases. At the same time it is much easier to deal with a case in an institution where treatment and the necessary discipline can be enforced. A poor patient may be sent to a sanatorium for six months; he comes out much relieved, and after a short time looks out for a job; he probably has to go on short commons for a time before he is able to get suitable work, and very soon after starting breaks down and returns to the sanatorium, or is sent to an outdoor shelter at the workhouse, does another three or six months' cure, comes out relieved and goes through the same round of troubles as before, and finally is marked down as being unfit for any more work. This is not an imaginary picture; I have three cases in my mind—one has recently died, and the other two are in the last stages of the disease, both receiving outdoor relief at the present time.

Everything depends upon an early diagnosis and treatment at the tuberculin dispensary with pecuniary assistance for himself and dependants. The additional advantage of the home treatment is the opportunity it gives for getting at the contacts. We advise strict precautions as to the disposal of sputum, and insist upon oral cleanliness. The case is reported to the health authorities, and they in turn give directions, and in case of death deal with the disinfection of the premises. We advise hospital cases to apply to the Poor Law authorities for assistance in the way of extra food, and they usually get it.

Patients suffering from urinary tuberculosis should be as careful in the disposal of their urine as those suffering from pulmonary tuberculosis have to be with their sputum. I am of opinion that these urinary cases should be notifiable.

Diagnosis.

At the present day the diagnosis of tuberculosis must to a great extent depend upon the region affected and the possibility of demonstrating the presence of the tubercle bacillus. In pulmonary tuberculosis with sputum this is practicable; in urinary and cerebral tuberculosis it is also possible to obtain the tubercle bacillus; but there are cases of pulmonary tuberculosis where the sputum is scanty or absent. In glandular tuberculosis, tuberculosis of the eye and bone and joints, there is no possibility of obtaining the bacillus.

Generally speaking the evidences of active tuberculosis are: The physical signs, the subjective symptoms, and certain tests. The general practitioner should be conversant with von Pirquet's test and the gradual improvement noted on the administration of tuberculin, which are the most reliable tests.

Tuberculous antibodies are present in the blood of most people, whether tubercle is active, latent, or completely cured; it therefore follows that von Pirquet's test cannot be said to be diagnostic of active tuberculosis unless the rapidity of the reaction and its marked character are taken into consideration. There are fallacies in von Pirquet's test; in advanced tuberculosis reaction may be absent, owing to the oversatisfaction of antibodies, and in some cases of acute and rapidly fatal tuberculosis it is absent, owing no doubt to toxic surcharge. In children von Pirquet's test is of distinct value. It may be used as a test of the sensitiveness of the patient to tuberculin, and thus it may act as a guide to dosage.

Prognosis.

In selected cases the results of tuberculin are most hopeful, and even in unfavourable ones the improvement is such as to justify one in recommending it in quite advanced cases. In early cases, with or without rise of temperature, the outlook is good. Mixed cases are not unfavourable for treatment unless there is evidence of no reaction to tuberculin. In very acute and so-called galloping cases tuberculin may fail.

As it is held that nearly all cases of tuberculous meningitis are terminal of a general infection, it is obvious that treatment of any kind is not very hopeful; but if, as I believe, some of these cases are examples of "meningism," then the prognosis is certainly not bad. Cases of meningitis have recovered and remained apparently cured for some time, and then relapsed and died.

The more I see of tuberculosis, the more am I impressed with the fact of the necessity for the recognition of the disease in children and its treatment then. Amongst the poor, owing to lack of proper food and housing, the prognosis cannot be as favourable as in the class able to afford a more leisured existence. In tuberculous disease of the eye, my experience, although limited, leads me to regard the outlook of tuberculin treatment as most favourable.

Surgical tuberculosis reacts well to treatment, and on the whole one is justified in giving a favourable prognosis.

The unfavourable signs may be summed up as follows: High pulse-rate, high blood pressure, loss of weight, continuing elevation of temperature, and no improvement in the physical signs and the subjective symptoms. The favourable signs are: A fall in temperature and a corresponding improvement in the subjective symptoms, improvement in pulse and blood pressure, increase in weight, cessation of cough and sweats, disappearance of bacilli.

Sometimes the temperature drops without improvement in the other signs. This is distinctly unfavourable, and often the patient survives but a short time.

Specific Treatment.

There may be said to be two schools at work in the tuberculin or specific treatment of tuberculosis—one which holds that doses large enough to cause reaction are beneficial, and the other which holds that the dose administered should be so diluted as to cause no toxic action, or "reaction," as it is now popularly called. My experience began with the former mode of treatment, but now I take every precaution to avoid a reaction by giving a very small dose to begin with and very gradually increasing the amount and strength of succeeding doses.

I am now using Sahli's method of administering tuberculin. He has always held that very small doses of tuberculin was the correct method in treatment, and his aim all along for the past ten years has been to avoid reaction. He holds that the specific effect of all tuberculins, whether human, bovine, old or new, is the same; that the active principle of any of those tuberculins is the same; and that the beneficial effect depends upon the strength and mode of its preparation. He uses Béraneck's preparation, and gives the following as his special reasons for his preference:

1. The chemical nature of the preparation. It has a large content of specific immunizing substances, while the use of peptone-free culture medium practically excludes non-specific toxins. The high specificity of Béraneck's preparation is most clearly proved by the fact that tuberculous, and only tuberculous, patients react by fever to minute doses of tuberculin, the healthy tolerating large doses without displaying any signs of reaction.

2. It is a true solution of tubercle bacillary protein held in solution as an acid albumen. It is, therefore, superior to all tuberculins not filtered through porcelain, and especially to bacillary emulsions in which high dilutions cannot be accurately prepared, owing to their non-homogeneous character.
3. It is supplied ready for use in suitably graduated dilutions and the absolute amount of tuberculin guaranteed.

Sahli's dilutions are on the scale that each dilution is twice the amount of the one above. Philip of Edinburgh uses Béraneck's tuberculin, but makes his dilutions on the decimal scale. Philip's dilution is the same as Sahli's at two points.

Cause of Reactions.

Various theories as to the causation of tuberculin reactions have been advanced.

1. The summation theory attributes the general reaction to the addition of the injected tuberculin to that already preformed in the focus and circulating in the organism, and the focal reaction to its addition to the focal toxin.

With regard to the summation theory, it should be remembered that the further away from the focus of disease the less tuberculin there is. From this it will appear that if tuberculin is injected into the circulation there will be a greater focal reaction than a general reaction. Moreover, a focal reaction will be obvious when no general reaction can be detected; this, I take it, is in favour of the individual.

2. The difference theory supposes that the tuberculin calls forth an antitoxin, and that if too much tuberculin is injected the amount of antitoxin necessary to cope with it being insufficient a reaction results (general and focal).

3. The theory which regards innate sensitiveness as the chief factor is disproved by the fact that the sensitiveness is not a fixed condition, but is the result of the tuberculous condition present in the individual. Normal individuals are not sensitive to tuberculin, infected individuals are.

4. Wolff-Eisner supposes that when tuberculin is injected into an infected organism it unites with the lysin which is present as the result of the disease infecting the organism, and that the large molecule of tuberculin is split up by the lytic action, forming tuberculinolysin.

Sensitiveness to tuberculin must be looked upon as a favourable sign in the treatment of tuberculosis; this does not mean that pronounced reactions are desirable, they must be avoided; but if a reaction is not evident clinically how is its presence to be realized? Sahli says by an increased leucocytosis, but for all clinical purposes the temperature and the subjective symptoms must be the guides; if there is no rise in temperature and no marked increase in focal signs and no malaise, it is justifiable to assume that the dose is not too large.

At the Inselspital, Berne, Professor Sahli is now using Koch's old tuberculin as lymph is used in vaccination. He begins, say, with two marks on the arm twice a week, increasing the number to four twice a week; in advanced pulmonary tuberculosis he found that the patient made a general improvement, as shown by an increase in weight and lowering of temperature; there was never any increase in the physical signs in the lung but a gradual improvement. By this method a very much stronger dose of tuberculin can be given.

As the negative phase is concurrent with the rise of temperature and even prolonged beyond its fall (Wright), injections every day or every third day are wrong, as the negative phase would not be complete before another injection is given. It is wrong to give tuberculin in large enough doses to cause a rise of temperature, and it is this procedure which is no doubt responsible for some of the failures in tuberculin treatment. I have found that in my early cases, where I did get a rise of temperature as the result of improper dosage, the complete reaction lasted three or four days. There was a rise above normal, then a fall below normal, and a gradual rise to normal. I now give such small doses as will obviate a rise of temperature. If the temperature is subnormal, it rises gradually to normal under graduated dosage. In two cases (eye and knee) I gave an excessive dose, with the result that the temperature reached 103°, and there was headache, sickness, loss of appetite, and cough (tuberculinism). These symptoms disappeared on the third day, and were followed by a feeling of well-being, and by an improvement in the local conditions. The knee case had a return of pain in the joint during the three days; in both I returned at the end of a fortnight to the smallest dose of the weakest dilution that they had had previous to the overdose. Cases with cavity and haemorrhage should be treated with very great circumspection; as tuberculin causes focal congestion it is obvious that there is a grave risk of causing haemorrhage in the one and increasing it in the other. I always begin by keeping the patient three days in bed; when going from one dilution to a stronger, I keep the patient in bed a day. If the blood pressure is low tuberculin will raise it; a high blood pressure, however, is not to be aimed at. I do not administer tuberculin during menstruation.

The immunity arising out of the use of tuberculin can in no sense be considered to be passive. The individual may show general tox-immunity, yet the focus of the disease may remain unhealed. On the other hand, the focus may heal without the individual showing a general tox-immunity. Again, focal healing may take place, and the individual show intense sensitiveness to tuberculin, healing being brought about by a local tox-immunity.

I have been in the habit of making the injections into the extensor aspect of the forearm. The place where the injection is to be made is rubbed with a piece of cotton-wool soaked in ether, and either a little tincture of iodine is applied to the place or a drop of some antiseptic, such as 1 in 2,000 mercury perchloride, placed on the arm and the puncture made through it. In lupus cases I sometimes make the injections into the diseased area, the point of the needle being entered just outside the area of the disease and the contents being injected into the diseased area. Sometimes a reaction takes place at the point of injection, but so far I have only found this marked when the dose has been very strong. In two of my cases, the eye case and the knee case, this local reaction was well marked, and in the eye case sanious material escaped some weeks after; in the knee case it was absorbed.

In young children I sometimes give tuberculin by the mouth. It has a distinct effect on the disease when given in this way; if too large a dose is given a big reaction will result, but will not be so marked as if the same dose were given subcutaneously. It should be given on a fasting stomach, the most favourable time being 6 a.m. As Béraneck's tuberculin is not made up with an antiseptic, the syringe should be made scrupulously clean for each injection. If the needle is kept in absolute alcohol, this should be removed before use, as alcohol inhibits the action of the tuberculin.

I have hitherto used T.R. human. I have not noticed any such difference in the results in the use of B.E. human, bovine T.R., or a combination of the two, or a combination of T.R. human and bovine, as to make me prefer them to weak doses of T.R. human.

Cases with a low blood pressure react well to tuberculin, as before said, the blood pressure rising. Cases with a high blood pressure, quick pulse, and fever require very small doses and rest.

Some cases of mixed infections do well, others do not, but I have not had sufficient experience to dogmatize. In mixed infections and advanced cases with mixed infections tuberculin may do good. I am treating four of these cases at the present time, and so far they show signs of improvement.

With regard to the time between each dose, I have usually allowed a week to pass; this, at any rate, is on the safe side.

Wright says that in the negative phase there is a diminished content of protective substances in the blood; the positive phase follows with an increase. At the close of the cycle there is a certain amount of protective substances remaining. The phases are affected by the strength of dose; too strong a dose prolongs the negative phase. The cycle lasts about three days, and, allowing a rest period of a day, this would bring the period between each dose very nearly to a week; but, as the aim should be to avoid reactions by giving small doses, a three-day interval is not unreasonable; injections may therefore be given twice a week. It is advisable that the injections should be given about 11 a.m., and the temperature taken twice in the twenty-four hours, or every four hours until 9 p.m.

REFLECTIONS ON THE IMPORTANCE OF TOXIN SATURATION OF TISSUES,

CONSIDERED IN RELATION TO THE TREATMENT OF PULMONARY TUBERCULOSIS.

BY

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AT the outset it may be stated that this paper has been written with the object of offering a plea for the comparatively simple methods of treatment of this disease, and to draw attention to some of the more important aspects of tuberculin treatment.

There is good reason for believing that a sharp line of distinction should be drawn between tuberculosis attacking fixed organs (a condition which is often referred to as surgical tuberculosis) and tuberculosis attacking mobile organs, the important organs in this connexion being the lungs, though to a far less extent tuberculosis of the pericardium, joints, and alimentary canal might be included. The lungs being constantly in motion and very vascular become when attacked mechanisms for the distribution of toxin.

The course of events which follow when tubercle bacilli invade the lung is very various. In many cases the local tissues will be able at once to destroy the bacilli, otherwise the bacilli will grow and form toxins, which, if of low virulence and the local tissues are resistant, may end in the bacilli, though not necessarily being killed, becoming surrounded by more or less dense fibrous tissue. Unfortunately, in many cases, at some one or more points, destructive processes obtain the upper hand, and although the fibrous tissue tends to limit destruction and at the same time to import a measure of rigidity into the affected lung, the disease continues to spread slowly.

If the bacilli be a little more virulent, they may give off just enough toxin to destroy the immediately surrounding tissues, although not enough to reach healthy tissues beyond, in which case the symptoms of a general character will be slight, but the disease will gradually destroy the surrounding lung tissue; this may be the explanation of those insidious cases in which the lungs are found to be extensively diseased, without any very marked general precedent symptoms.

If the bacilli be even more virulent, and give rise to so much toxin that it cannot all be anchored to the surrounding tissues, and, as there will be less possibility of the production of much fibrous tissue, and there will thus be more mobility of the diseased focus, it will follow that some of the toxin will reach healthy tissues, where antibodies will be formed, which, on again reaching the diseased area, will tend to inhibit the growth of the bacilli there situated. If they completely inhibit growth, a cure will have commenced. If, however, there be so much activity, or the body tissues as a whole yield an insufficient amount of antibody, then the healthy tissues arrive at a condition which I shall call toxin saturation; no antibody can be produced, and the toxin circulating in the system will assist the activity of the bacilli, the disease will rapidly spread, and death speedily follow, unless means are at once taken to counteract this grave condition, and produce once more a condition of hyposaturation. Such a state of affairs does not occur in tuberculosis attacking relatively immobile tissues.

From this it follows that if we are to treat this malady successfully, means for determining the condition of the tissues with reference to saturation by toxin will be of enormous importance. I am of opinion that this is not a difficult matter if all the measures at present at our command be taken. The most important method is an accurate record of the temperature taken in the rectum (by any other method very little information of value can be obtained); the patient should be kept in bed for this purpose. If it is found that the temperature taken in the rectum before rising in the morning is above 36.5° C. (97.7° F.) I am of opinion that the tissues are approaching a condition of toxin saturation; or, if the temperature during the day, when the patient is at rest in bed, rises higher than 37.5° C. (99.4° F.) the same conclusion may be arrived at. The temperature taken before rising is by far the most significant in cases which are only slightly febrile, and it should be further noticed that the temperature taken at 9 p.m. should be lower than the afternoon temperature. In cases in which the disease is only slightly active, where almost all the toxin is neutralized by the tissues at the seat of the disease, although the temperature may consequently deviate from the normal, yet the remaining tissues of the body may be in a condition considerably removed from saturation by toxin. The symptoms of saturation are the classical symptoms of pulmonary tuberculosis. The mildness of the symptoms in some cases is due probably to toxin saturation being incomplete, at least at all hours of the day and night. A night's rest often sufficiently restores the balance, the patient being thus enabled to struggle on a little longer. It may be concluded that when night sweats occur, saturation is complete at least for part of the twenty-four hours. A temperature such as the above only indicates that the balance has been restored, and gives no indication in itself of the capacity of the tissues to deal with toxin; it follows, therefore, that individuals with the balance only just restored, and those who have a large capacity for dealing with toxin, will exhibit similar temperature charts.

It is, however, comparatively easy to distinguish between these cases by the following methods. If it is found that a very little exercise causes the temperature as described above to deviate from the normal—that is, if on the following day, the temperature taken in the rectum before rising in the morning is higher than 36.5° C. (97.7° F.) the tissues are nearly saturated with toxin. On the other hand, if a large amount of exercise causes no increase of this temperature, it follows that either there is no approximation to toxin saturation, or else the bacilli are so shut away from contact with the tissues generally that only an inappreciable amount of toxin can reach them, even after violent exertion, or that the tissues of the body have become tolerant to toxin. It follows, therefore, that, besides being useful as a method of treatment in chronic cases, the capacity to do a large amount of work without unfavourable symptoms is a circumstance indicating a favourable prognosis. The method of treating cases by severe physical exertion with the intention of distributing toxin to the healthy tissues and the consequent production of immunity is disadvantageous in so far as it produces activity in the diseased focus, and advantageous in so far that any toxin so distributed can act on a very large number of different tissues.

Another method of gauging the amount of toxin saturation is to administer tuberculin. The action of tuberculin on an organ previously infected with tuberculosis may be threefold: (1) Action at the site of inoculation; (2) general reaction, indicated by temperature and symptoms of malaise; and (3) action upon the diseased focus. Neither (1) nor (2) denotes the presence of active tuberculosis, but only indicates that the tissues of the body have been so changed that they are able to activate the injected tuberculin. The general reaction will therefore be absent in the case of persons who have never been infected and in those in which tolerance to the activated tuberculin has been achieved, though a cure may not have taken place. If a sufficiently large dose be injected, it follows that there may be a severe general reaction, even in cases of surgical tuberculosis, but as the disease is local, there will be no great danger of the reaction persisting; the reaction will occur rapidly and will be soon over; when lasting for a prolonged period, it indicates renewed activity in some vascular tuberculous focus.

If a small dose such as 0.00003 c.cm. of P.T.O. be administered to a patient with high fever, there will be no reaction at the site of inoculation, because the tissues at this spot will be toxin saturated, the symptoms, however, will become markedly more severe, and the signs of activity in the affected portions of lung will be considerably increased. If a larger dose be administered the symptoms will be more pronounced. In such a case tuberculin has been administered unwisely to a patient whose tissues are saturated with toxin, the toxin injected presumably reaches the tissues involved in the disease, and assists its spread.

On the other hand, if a similar dose of tuberculin be administered to a patient having a temperature ranging permanently above 37° C. (98.6° F.), but not reaching

higher than 37.6° C. during the twenty-four hours, when the patient is in bed, one of three events may occur: (1) There may be no local reaction, the temperature will probably be raised slightly and headache or sickness may be complained of; in this case also it may be assumed that the tissues are saturated with toxin, and that the tuberculin has been harmful. Or (2) there may be a local reaction at the site of injection, and within a few hours the temperature may conform to the normal, and be as low as 36.5° C. (97.7° F.) the next morning. In this case it is probable that the bacilli in the diseased tissue are only slightly active, and the toxin produced is not sufficient in amount to have saturated the tissues completely. Or (3) there may be no local reaction, but an increase of temperature during the next twenty-four hours, together with other symptoms of intoxication; after this preliminary rise, the temperature may fall to normal. In this case it is assumed that the tissues at the site of inoculation were unable to deal with the whole of the tuberculin injected, and therefore some of this reached the actual focus of disease and stirred it up to greater activity, producing as a result more autogenous tuberculin, which, on reaching tissues in other parts of the body not saturated with toxin, caused the production of antibodies, which, on reaching the diseased tissues, inhibited the action of the bacilli. This latter method is not a very satisfactory means of bringing about a cure, for if the focus of disease, owing just to the right amount of antituberculin not being formed, is not inhibited, it will probably cause extension of the disease and a persistently abnormal temperature.

If a suitable dose of tuberculin be administered, we can gauge from the result whether toxin saturation is almost complete or otherwise, for if a small dose causes a rise of temperature in a case where the temperature was previously normal, we may assume that toxin saturation is almost complete. It should be remembered that when it is thought necessary to use tuberculin for diagnostic purposes, the tissues will, as a rule, be considerably removed from toxin saturation.

A transient rise of temperature does not necessarily imply any increase of focal disease, but is due to the activation of the injected tuberculin in a patient who is obviously intolerant of any considerable amount; the symptoms being slight, it will therefore follow that if this activated tuberculin result in the formation of large amounts of antibody, as may well happen where the tissues have been comparatively uninjured by autogenous tuberculin, after a transient feeling of malaise, enormous improvement may follow. On the other hand, supposing the patient be nearly toxin saturated, the activated tuberculin, even if the dose be small, may stir up tuberculous foci, and the primary reaction may be continued into the fever, caused by increase of the disease.

It seems sufficiently obvious that if a patient be able to utilize without injury large doses of tuberculin, the prognosis is relatively good. The disadvantage of using large doses for diagnostic purposes would seem to be that they establish a tolerance to the poison, which destroys sensitiveness and necessitates large doses of tuberculin being used in the after-treatment.

When tuberculosis attacks non-mobile organs such as the skin, bones, cornea, brain, choroid, etc., toxin saturation is unlikely to be present; at the same time tolerance to any considerable amount of tuberculin is unlikely to have been achieved; in such cases relatively small doses of tuberculin, administered at considerable intervals in order to avoid destruction of sensitiveness, may bring about a cure without producing a focal reaction. If we are quite sure that the products of ulcerative destruction can be got rid of without danger, we may give larger doses if we are sure the larger doses will not stir up disease elsewhere which is quiescent. The avoidance of focal reactions when we are treating tuberculous tumours of the brain would seem essential. In glandular tubercle the minimum dose should be administered which is active, and no effort need be made to destroy sensitiveness, whereas the production of focal reactions may cause enlargement instead of diminution, and where the glands are deep-seated serious consequences may follow.

In administering tuberculin to cases of pulmonary tuberculosis we have to consider first the presence or absence of toxin saturation. This is discovered by putting the patient to bed and taking the rectal temperature as advised above. If the temperature be normal we then try the effect of exercise; if this does not cause a rise of temperature we may begin with a small dose of tuberculin.

In order to obtain a correct notion as to the administration of tuberculin to cases of pulmonary tuberculosis, they may be divided into classes:

1. Very early cases, without fever, which may have been diagnosed by injections of tuberculin, a safe procedure in so far as the tissues are far removed from toxin saturation. In these cases the unsaturated tissues are able to make use of a comparatively large dose of tuberculin, and, although the general reaction may be severe, it will only be transient. If the same dose be repeated it will be found that a certain amount of tolerance has been established to the poison.
2. Cases commencing with haemoptysis without previous symptoms; such cases are, for obvious reasons, not toxin saturated, and may be treated on the same lines as surgical tuberculosis, or, perhaps better, by means of gradually increasing doses of tuberculin given every five days, just keeping the tissues sensitive. In any event, big doses in such cases are unlikely to produce serious symptoms, though for greater security a relatively small dose should be commenced with.
3. The ordinary so-called early case, which is slightly febrile, where, as a rule, toxin saturation is, or is almost, complete. These cases must be treated by rest in bed and ordinary sanatorium treatment until their temperatures are normal, when very small doses of tuberculin may be commenced, advantage being taken of their recovery to allow of the destruction of a certain number of bacilli by means of the tuberculin, which will in itself aid the restoration to hyposaturation.
4. Cases which have existed for a considerable period, and where, owing to fibrosis and highly resistant tissues, toxin saturation is not complete, but where the disease slowly spreads locally. These cases are also best treated by the method above described.
5. Cases with extensive disease, where, owing to prolonged auto-intoxication, a considerable degree of toxin tolerance has been established. These are cases which have lost their sensitiveness, and may show a subnormal temperature. In these cases tuberculin may be administered, commencing with a small dose and rapidly increased until such a point be reached that they again become sensitive, and benefit may then be expected.
6. Cases exhibiting a large amount of caseous disease it may be well to treat as cases of surgical tuberculosis with small doses repeated at intervals of at least a week, in order to avoid ulceration of large masses of diseased tissue—a process not without danger.

In gauging the amount of sensitiveness upon which a cure depends, advantage may be taken of the reaction at the site of inoculation, and for this purpose the back of the forearm is most suitable. The absence of redness or swelling at the site of injection may be due either to toxin saturation being complete or to tolerance on the part of the tissues to the dose injected. Absence due to the first cause will be accompanied by fever and other symptoms. Absence due to the second cause will be unaccompanied by any symptoms. In the first case the tuberculin should be stopped for a time and the patient confined to bed; in the second the dose can be increased without injury. Carl Spengler has pointed out the relationship between the reaction at the site of injection and the focal reaction; in order that use may be made of this phenomenon it is essential that the injections be made on the back of the forearm.

There is some reason for thinking that it may not be wise to give the injections too often, or to increase them too rapidly, as by that means sensitiveness is too quickly destroyed, before the bacilli still capable of being reached by the antibodies have been destroyed.

In those cases in which any degree of toxin toleration has been acquired, when giving tuberculin great care must be taken to watch symptoms and physical signs, as there is reason to suppose the giving of tuberculin to such cases may hasten the fatal event, without any marked deviation of temperature.

Finally, I should like to draw the attention of those who are called upon to treat this disease, even if tuberculin be not used, to the paramount importance of preventing toxin saturation occurring in early cases, for it should be remembered that in such cases if the sensitiveness be preserved it may be possible, by comparatively simple measures, such as absolute rest followed by graduated exercise, to bring the disease to a standstill. Unfortunately, the neglect of rigid treatment in such cases allows of so much increase in the diseased process that all kinds of complicated measures may be required before a successful issue is obtained. The object of treatment should be to

cure the disease where possible without using up healthy lung tissue in the process. Whether it is so important to avoid using up sensitiveness with a liberal hand is not quite so clear, but at any rate we should avoid confounding toxin toleration with immunity.

EIGHTIETH ANNUAL MEETING

OF THE

British Medical Association.

Held in Liverpool on July 19th 20th, 22nd, 23rd, 24th, 25th, and 26th.

PROCEEDINGS OF SECTIONS.

SECTION OF DISEASES OF CHILDREN.

Mr. ROBERT JONES, President.

PRESIDENT'S INTRODUCTORY REMARKS.

AFTER welcoming the members of the Association and the visitors to Liverpool and to the meetings of the Section over which he presided, the Chairman called on Mr. H. J. Stiles to open the discussion on the after-results of the major operations for tuberculous disease of the joints.

DISCUSSION ON THE AFTER-RESULTS OF MAJOR OPERATIONS FOR TUBERCULOUS DISEASE OF THE JOINTS.

OPENING PAPER.

By HAROLD J. STILES, M.B., F.R.C.S.Ed.,
Surgeon to the Chalmers Hospital, Edinburgh, and Surgeon to the Royal Edinburgh Hospital for Sick Children.

WHILE I fully appreciate the honour of being invited to open this discussion, I am equally alive to the difficulty of the task which has been set me. The opinions which have been expressed with regard to the radical treatment of tuberculous joints have changed so much within recent years that the time has now come when it is hoped that a more definite decision may be arrived at regarding the indications for and the place to be assigned to radical procedures. Such a decision can only be come to after a careful analysis of the results which have been obtained by such procedures.

During the fourteen years that I have been surgeon to the Royal Edinburgh Hospital for Sick Children I have advocated and practised conservative treatment in the earlier stages of tuberculous joint disease. In cases, however, in which the disease has progressed in spite of conservative treatment, and in those in which the disease was already far advanced when the children were brought for advice, I have always deemed it expedient to resort to operative procedures. By operative procedures I wish it to be understood that I mean procedures sufficiently radical to remove, as far as possible, the whole of the disease. In this paper I shall not, therefore, refer to those half-hearted measures which I believe to be the reverse of beneficial.

As the time at my disposal is all too short to enable me to do anything like adequate justice to so wide a subject, I feel that I shall be pardoned if I base my remarks entirely on my own personal experience. I shall confine myself, therefore, to the results of the major operations performed for tuberculous disease of the large joints at the Royal Edinburgh Hospital for Sick Children during the decennium from 1901–1911. I shall leave out altogether the consideration of the shoulder and wrist joints; tuberculous disease in these joints is relatively infrequent, and the material at my disposal has not been sufficient to enable me to bring forward statistics which would add to the value of this discussion. With regard to the other large joints, my material comprises 205 resections, of which 63 were of the knee-joint, 59 of the hip-joint, 54 of the elbow-joint, and 29 of the ankle-joint.

The hospital records of each of these cases have been carefully epitomized and arranged in tabular form in order that the more important facts might be brought out and statistics compiled. Moreover, every endeavour has been made during the last three months to trace the individual patients, and to get as many as possible to return to hospital in order that they might be personally examined, and a record of their present condition obtained.

In this work I have been fortunate in obtaining the co-operation and assistance of Dr. John Fraser, who was formerly my house-surgeon and private assistant, and who has recently been appointed assistant surgeon to the hospital. Were it not for his help I could not have presented my results with anything like the same statistical accuracy. Let me here also take the opportunity of thanking those of my professional brethren who have taken so much trouble in the examination of those patients who lived remote from Edinburgh, for the purpose of filling up the special forms embodying the various questions asked in order that an exact estimate of the patient's present condition might be arrived at. In spite of all our endeavours unfortunately 66 patients (32 per cent.) could not be traced.

Knee-joint.

My statistics show that in tuberculous affections of the knee the disease has originated much more frequently in the synovial membrane than in the bone.

In primary synovial cases all surgeons are agreed as to the successful results to be obtained by conservative means provided the patient is presented for treatment at a sufficiently early stage of the disease. Unfortunately, however, by the time patients of the hospital class are brought for treatment the disease has frequently already reached the stage of destruction of cartilage, articular caries, and periarticular abscess.

Some surgeons prefer to open the abscess and continue conservative treatment in the hope of obtaining Nature's cure by ankylosis. Under the term "conservative treatment" is included iodoform injections, Bier's congestion, *x* rays, and tuberculin. My own opinion is that this line of treatment has proved so uncertain in its results that it is better, when the disease has reached the stage I have referred to, not to proceed with or continue conservative treatment, but to perform a radical operation which has for its object the removal of all the disease and the production as quickly as possible of a firmly ankylosed joint in good position.

As far as the prospect of curing the disease goes, excision gives better results in the knee than in any other joint, but at the expense, of course, of loss of mobility. The preservation of the other functions—namely, stability and weight-bearing capacity—can almost be guaranteed. In diffuse tuberculous disease of the knee-joint I have practically given up all operative procedures which do not aim at producing osseous ankylosis. Simple synovectomy, either alone or combined with division of the crucial and lateral ligaments, rarely gives satisfactory results. Unless the crucial ligaments are divided there is great risk of recurrence, due to incomplete removal of the disease at the posterior aspect of the joint, especially in the pouches behind the condyles.

With regard to the technique of the operation, it is a matter of no great importance which of the various incisions are employed, provided free enough access be obtained to enable the whole of the diseased synovial membrane to be removed. Having removed all the diseased soft parts, only sufficient bone need be taken away to ensure osseous ankylosis. The simplest, as well as the most certain, means of ensuring firm and accurate apposition of the bones is to nail them together. If properly introduced, the nails do no harm, and the patient is quite unconscious of their presence. Not only do they ensure osseous union, but they also render the after-treatment much easier. The firm fixation afforded by the nails does away with any necessity for complicated splints, and plaster-of-Paris need not be employed until after the wound is soundly healed. While introducing the nails

the surgeon should satisfy himself that the assistant is holding the bones accurately and firmly in position. Each nail is pushed through the skin immediately below the tuberosity of the tibia, and then driven obliquely upward into the opposite femoral condyle. Care must be taken that the nails are kept sufficiently parallel to the bones to prevent their points from penetrating the popliteal surface of the femur. In older children two nails are introduced, but in young children one is sufficient. The nail should be of such a length that by the time it is passed well into the femur only about ½ in. is left projecting outside the skin; the advantage of this is that the head of the nail may be covered by the dressing. Square nails are preferable to round ones, as they do not loosen so readily. They are removed at the first dressing, three weeks after the operation. In the child I prefer a simple double long splint, with a cross piece which supports the legs a little above the heels. For the first forty-eight hours the affected leg is placed in the vertical position. This position has the advantage not only of reducing the after-bleeding to a minimum, but it also favours the venous and lymphatic return, while in little children it effectually prevents urinary contamination of the dressings. At the end of forty eight hours the vertical support is removed and the limb placed in the horizontal position.

The only difficult part of the operation is the accurate sawing of the lower end of the femur. This should, of course, be done in such a way that there is no angular deviation of the leg when the tibia is brought into firm apposition with the femur. The cosmetic result is better if just a trace of flexion is obtained, and it is still better if the patella is preserved; the articular surface of the latter should therefore be removed, as well as a small slice of bone from that portion of the lower end of the femur with which it comes in contact—namely, the upper and outer part of the trochlear portion.

Since I have employed the nails I have generally found that the knee becomes firmly ankylosed in from three to six months.

When tuberculous joint disease in children is secondary to an osseous focus, that focus is much more frequently met with in the metaphysis (growing end of the diaphysis) than in the epiphysis. In the case of the knee, however, the primary focus is sometimes met with in one or other epiphysis, and my experience has been that these epiphyseal foci are commoner in young children, the explanation, no doubt, being that the centres of ossification in the epiphyses appear very early. The results of radical treatment are obviously less satisfactory when there is a primary epiphyseal focus, since complete removal of the focus necessitates more or less interference with the epiphyseal cartilage. It is in these cases that the operation is liable to be followed, not only by considerable shortening, but sometimes also by angular deformity.

When the disease begins in the lower metaphysis of the femur it generally comes to the surface in the region of the trigone, and, unless the disease is very far advanced, it can be removed without interfering with the joint.

When both the epiphysis and metaphysis are involved excision cannot be expected to give a good result. When the condition is further complicated with sinuses, amputation is usually preferable to excision. If, however, the patient's general condition is satisfactory, and the osseous disease is not too extensive, it may be advisable to give excision a chance, as a good result is sometimes obtained.

During the ten years from 1901–11 there have been 63 excisions of the knee, and of these 38 have been traced. The average age at the time of operation was 5 years; 39 (62 per cent.) were below 6, and 24 (38 per cent.) between 6 and 12 years of age. Fifteen and a half months was the average duration of the disease before operation was resorted to. An abscess or sinus was present at the time of operation in 32 (50 per cent.) of the cases. In 23 of the cases there was osseous as well as synovial disease, the former being sometimes in one bone, but in the majority of cases in both.

Thirty-three (52 per cent.) of the cases were in hospital for less than thirty days after the operation; 17 between thirty and sixty days, and 10 over sixty days. In the last 20 cases the average stay in hospital after operation was twenty-four days, whereas in the first series of 20 cases it was forty-seven days.

Healing by first intention resulted in 53 cases, while in 9 cases the wound broke down or recurrence set in within a month after operation. Twelve out of the 63 cases required to be subsequently amputated, and of these 9 were in patients under 5 years of age. Six out of the 12 have been traced; 1 died eighteen months after the operation, the others are alive and in good health. In all of these cases there was destruction of cartilage and articular caries; 6 were complicated with abscesses, 2 had sinuses, and one of the latter had a primary focus in the upper end of the tibia. The ninth case had a primary focus in the lower end of the femur. In three of them the notes state that the advisability of amputation was seriously considered at the time of excision. Of the three older children in whom amputation was subsequently necessary, all had extensive destruction of the joint—one with a primary focus in the femur, another with a focus in the tibia, while the third had a large extra-articular abscess, and was in a very debilitated condition at the time of operation.

There were 4 deaths—one from tuberculous meningitis a month after operation, one from measles, one from general tuberculosis three months later, and one eighteen months after amputation from general tuberculosis.

Of the 30 cases that have been traced and recently examined, there was absolute ankylosis in 29 cases and slight movement in 1 case. In 27 instances there was a little flexion, the leg was absolutely straight in 1 case, and in a position of genu recurvatum in 2 cases. The flexion averaged 10 degrees, in one instance there were 20 degrees, and in one there were 90 degrees. There was a tendency to genu valgum in 3 instances.

Some surgeons, while advocating excision of the knee for tuberculous disease in the adolescent and adult, are opposed to it in children. The two main arguments adduced by the ultraconservative school against excision of the knee for tuberculous disease in children are: (1) That even in advanced cases the disease may ultimately become arrested with an ankylosed limb in good position, provided sufficient time and attention be given to the case, and provided also open-air treatment is superadded. (2) That a natural cure, so produced, avoids the excessive shortening which is supposed to result from excision in childhood.

Is there any real justification for this nightmare of excessive shortening about which one hears so much?

First of all, with regard to the nature of the shortening. The ultimate shortening which presents itself at the termination of the growth period is a combination of: (1) The immediate or primary shortening which corresponds to the amount of bone removed at the time of operation; and (2) the secondary or diaphyseal shortening which results from deficient growth subsequent to the operation. It is true that the growth of the femur takes place more from the lower than from the upper epiphysis. This, however, is fortunate, because in excising the hip the whole of the epiphyseal cartilage is removed, while in the case of the knee the upper portion of the epiphysis—namely, that which becomes the so-called epiphyseal plate of cartilage, is not removed, at any rate in primary synovial and early osseous cases. In primary synovial disease of the knee, even when the articular cartilage has become completely destroyed and the subjacent bone involved, the amount of bone removed in order to get beyond the disease seldom amounts to more than 1 inch.

The question to be ascertained, therefore, is—How far does the operative interference with the epiphysis interfere with the subsequent growth of the diaphysis? If this growth is not seriously interfered with, then the chief, indeed the only, argument against excision of the knee in children falls to the ground. The fact that excision is followed by a stiff joint is no argument against the operation, because it is only in those cases in which ankylosis would also result from conservative means that the operation is advised. The full extent of the secondary diaphyseal shortening unfortunately can only be ascertained in patients who have completed the growth period. The cases I am dealing with have been operated on within the last eleven years, so that comparatively few have reached this period, but it is satisfactory to note that those that have have all had less than two inches of shortening. In those cases which were primarily synovial the shortening has been less than two inches. Taking the cases in which the exact amount of shortening could be ascertained. it

was found that in one there was absolutely no shortening, so that the operation must have stimulated growth of the diaphysis to compensate for the primary shortening. In 9 cases there was less than 1 in. of shortening; in 12 there was between 1 and 2 in.; in 3 it reached 3 to 4 in., while in 2 it amounted to 5½ in. The average amount of shortening in the femur was 1.23 in., and in the tibia 0.93 in. It was found, however, that in those cases in which the shortening exceeded 3 in. a secondary cuneiform resection had been performed for subsequent angular deformity.

It is not unreasonable to suppose that the shortening would be more marked in cases in which the excision was performed during early childhood. Fortunately, however, this holds true to a slight extent only. For example, a patient, now 12 years of age, who had his knee excised when only two years old, has only 1¼ in. of shortening. Another patient of the same age, whose knee was excised at the age of 3 years, has 1½ in. of shortening.

Next, with regard to the effect of the shortening on the function of the limb, it is to be noted that, when the knee is ankylosed, a certain amount of shortening is a distinct advantage, as it enables the patient to clear the ground in walking without having to lift up the pelvis on the affected side. In one or two cases the shortening has not been quite sufficient to compensate for the ankylosis, the result being that the patient has been obliged to wear an addition to the sole on the *sound* side. This happens when there has been no subsequent growth shortening, and when the primary shortening is less than ¾ in. It is of interest to inquire what is the amount of shortening preferred by an adult who has a stiff knee. I inquired carefully into the matter from a patient, a chemist, aged 19, whose knee was excised when he was 11 years of age. He had 1¾ in. of shortening (femur 1 in., tibia ¾ in.). When I expressed surprise that he had no addition to his boot, he remarked that he had tried it but found that he walked better without it. As far as my observations have gone, I find that patients with not more than 1¼ in. of shortening do not require an addition to the boot. Should an addition of 1 in. be required, this amount is not likely to give rise to much inconvenience—in short, we are well within the mark when we state that the patient experiences little or no inconvenience from an amount of shortening which does not exceed 2 in.

We have now to consider to what extent the results of excision are marred by the subsequent development of angular deformities and curvatures at or in the neighbourhood of the resection. When these conditions are present they not only give rise to marked deformity but they also aggravate the shortening. Fortunately these complications are comparatively rare, but when they do occur they take place almost invariably in children, and they usually develop within the first year or two after operation. Flexion deformity is due to the formation of an angle either at the junction of the two bones or to curvature of the lower part of the shaft of the femur. In genu recurvatum the tibia may either be bent forwards at an angle at its junction with the femur, or the forward curve may be at the upper part of the tibia. While angular deformity at the site of operation may be due to faulty sawing or paring of the bones, it is more frequently the result of having to encroach upon the epiphyseal cartilage in order to remove completely an osseous focus. The deformity which is produced by a curvature above or below the junction of the two bones is a static condition due to bending of the bone at the end of the diaphysis rather than an error in the technique of the operation. This latter deformity comes on more gradually, and is later in its onset than is the case with the angular bending at the seat of operation.

Out of the 63 cases 3 required cuneiform resection for genu recurvatum, one for excessive flexion, and one for genu varum combined with slight flexion and incomplete ankylosis. The 3 genu recurvatum cases were 4, 7, and 9 years of age respectively at the first operation. In the first case, one of advanced synovial tubercle, the cuneiform resection was done eight years after the excision. The patient is now 14 years of age, and although she has 5 in. of shortening and 3½ in. added to the boot, she is able to get about perfectly well without the aid of any support. The second case had, at the time of the original operation, extensive disease with an extra-articular abscess. The cuneiform resection was performed four years later. Unfortunately she cannot be traced. The third patient had advanced disease with a sinus on the outer side of the knee. The cuneiform resection was done two years later. She is now 18 years of age, and when seen recently she was found to have a straight and firmly ankylosed limb with 4 in. of shortening. She was in excellent health and able to get about without inconvenience.

The patient with a right-angled flexion ankylosis was operated on when 8 years old for advanced synovial tubercle. The cuneiform resection was done three years later, but we have failed to trace her. The patient with varus deformity had her knee excised when she was 3½ years of age for advanced synovial disease. Cuneiform resection was done five years later. She is now 11 years old, and when seen a few weeks ago there was a slight amount of varus and flexion along with a trace of movement. There are 5½ in. of shortening, but in spite of this she is able to walk about without any support.

In all the knee cases which have been traced up to date one was pleased to find that the general health of the patients was excellent, that there were no sinuses, that the scars were all completely decolorized, and in every instance the patient was able to walk without the aid of any support or apparatus. In one instance there was marked lameness—namely, in the patient with right-angled ankylosis; in fifteen instances it was almost impossible to detect the limp, more especially after correcting the shortening.

Hip-joint.

While many surgeons are not opposed to excision in advanced tuberculous knees in children, it would appear that the majority have been so dissatisfied with excision of the hip that they have almost abandoned it. Some go so far as to say that it is practically unjustified. I hope to show that this is by no means the case.

Unfortunately, the upper epiphysis of the femur comprises merely the articular head of the bone. The neck, which represents, therefore, the metaphyseal portion of the diaphysis, is mainly intra-articular. When a primary osseous focus occurs in the upper end of the femur, it is almost invariably situated in the metaphysis—that is to say, in the neck of the bone—so that it is quite easy to understand how it is that a focus in this position should perforate into the joint at a comparatively early stage of the disease.

The joint may also be involved secondary to a primary osseous focus in the acetabulum. In Lexer's illustration of the distribution of the nutrient artery to the ileum a well-marked leash of parallel vessels is seen passing towards its acetabular extremity, and it is no doubt by this route that the tuberculous embolus generally reaches the acetabulum. The acetabular extremities of the three elements which go to form the innominate bone are analogous to the metaphyseal extremities of the diaphyses of the long bones.

In many cases of advanced tuberculous coxitis, the skiagram shows, and the operation confirms, the frequent presence, in addition to the diffuse synovial disease, of a focus either in the neck of the femur or in the acetabulum. It is in these primary osseous cases, in which the disease has become advanced in spite of conservative treatment, that excision is in my opinion indicated. I refer to the stage when there is destruction of the cartilage and subjacent bone, along with migration of the acetabulum; when either the joint capsule is distended with fungous granulations and tuberculous débris, or an extra-articular abscess has already formed. If the clinical signs and the skiagraphic appearances indicate that the disease is in a comparatively early stage, conservative treatment may often be persevered with, even although an abscess be present, because, as Mr. Jones points out, such an abscess may become absorbed, and if this should not take place it sometimes becomes shut off from the joint during the healing of the latter, so that it is often better to deal with it at a later date. If, on the other hand, the abscess is associated with advanced disease of the hip, it is in my opinion advisable to step in and excise instead of first opening the abscess. It is not wise to delay the excision until sinuses have formed; the adoption of such a course is largely responsible for the bad results which have been obtained by excision and for the disrepute into which the operation has fallen.

The advantages of operating at an advanced stage of the disease, but before the formation of sinuses, are that the pain and suffering are immediately got rid of, sleep is restored, appetite returns, and there is a striking improvement in the general health. The small amount of disease which is left behind as the result of the operation is, as a rule, easily overcome by the active local tissue changes associated with the healing process. The time necessary to bring about such a result may be counted by weeks instead of months, or even years, as is the case with conservative treatment; moreover, the healing is much more likely to be permanent, and there is less tendency to recurrence. After the wound is healed and the limb put up in plaster-of-Paris, the rest of the treatment can usually be carried out satisfactorily at the patient's own home.

Before proceeding to statistics I may briefly refer to one or two points in the operative technique which specially contribute to bring about a good permanent result. Kocher's posterior angular incision is to be preferred to any other, as in addition to giving good access to the upper end of the femur, it affords the best access to the acetabulum. After retracting the split gluteus maximus, the insertion of the gluteus medius is detached by dividing the periosteum from the posterior superior to the anterior inferior angle of the trochanter, and then detaching the insertion along with a layer of cartilage upwards and forwards until the upper and anterior borders of the trochanter are exposed. The insertions of the gluteus minimus and pyriformis are next detached. The posterior part of the capsule, now fully exposed, is incised in the coronal plane over the projecting head of the femur, and the opening is extended right up to the margin of the acetabulum. By rotating the limb inwards as fully as possible, and at the same time pushing the thigh well upward and backward, the head of the femur is readily projected through the opening. The whole of the neck of the femur should be removed, not only with the object of removing the bone focus, but also to give free access to the acetabulum. If no focus be present in the head or neck of the femur the acetabulum is investigated. It is often necessary to divide the attachment of the capsule along the dorsal margin of the acetabulum, thus converting the original incision in the capsule into a T-shaped one.

Having removed the synovial and osseal disease as completely as possible, the next question is, What procedure should be adopted in order to obtain the best functional result? In the case of the hip-joint, stability and weight-bearing capacity should take precedence over mobility, and with this object in view, after paring and rounding off the upper part of the trochanter, it should be planted into the acetabulum by placing the limb in the abducted position, after which the remains of the capsule, along with the deeper muscles, are united over the trochanter with interrupted catgut sutures. Another layer of sutures brings together the edges of the gluteus maximus. If there is no mixed infection the wound should be closed without drainage.

Care is taken to maintain the hip in the abducted position during the entire period of the after-treatment. At the end of three weeks or so, when the wound is soundly healed, a plaster-of-Paris case is substituted for the abduction splint, the limb being still maintained in a position of abduction.

It is now several years since I adopted the plan of removing the whole of the neck of the femur, and of implanting the trochanter into the acetabulum with the limb in the abducted position. I should like to take this opportunity of emphasizing the importance of the procedure, because I am of opinion that any success I may have had with excision of the hip for tuberculous disease is mainly due to its observance. If the leg be kept in the straight position after the head and neck of the femur have been removed, there is nothing to prevent a subsequent displacement upwards of the femur. The osseous stability of such a joint is lost, the pelvis being slung to the leg merely by the remains of the capsule and certain of the muscles which pass from the pelvis to the femur. The result is that when the patient begins to bear his weight on the limb the trochanter becomes more and more displaced from the acetabulum in an upward and backward direction. The result is progressive shortening, adduction, and flexion deformity, with increasing disability and lameness.

It is true that the abducted position predisposes to ankylosis, either complete or partial, but this is more than compensated for by the stability secured. Moreover, ankylosis generally spells permanent cure. An ankylosed hip in good position—that is to say, with the limb abducted, and at the same time very slightly flexed and a little rotated outwards—is certainly preferable to the progressive deformity and lameness which is associated with displacement of the femur upwards.

During the ten years from 1901-1911 there have been 59 excisions of the hip, and of these 40 cases have been traced. The average age at the time of operation was 5½ years; 33 were below 6 years of age and 26 between 6 years and 12. Eighteen months was the average duration of the disease before operation was resorted to. Twenty-five of the cases had been under conservative treatment for more than twelve months. An abscess was present at the time of operation in 45 of the cases (76 per cent.). In 53 there was osseous as well as synovial disease, the former being sometimes in one bone, but in the majority of cases in both. Usually, however, the disease was too far advanced to say whether the disease in the bone was primary or secondary. As far as one was able to judge from the condition found at operation, it would appear that the head and neck of the femur were more especially involved in 18 of the cases, while the acetabulum was chiefly affected in 9. When the condition showed distinct evidence of a primary osseous lesion, this was most frequently met with in the under surface of the neck of the femur—that is, in the metaphysis.

With regard to the mode of excision, the anterior route was employed in only 8 cases, nearly all of which were amongst the early series; 4 were done by an external incision, and the remainder by Kocher's postero-external angular incision, this method being employed even in cases where there was an anterior abscess.

Twenty-six of the cases were in hospital for less than forty days after the operation, 15 between forty and sixty days, and 18 over sixty days. Forty-eight patients were discharged with the wound completely healed and the limb maintained in the abducted position by means either of plaster-of-Paris or an abduction splint. In 9 cases the wound was not completely healed.

In 3 cases disarticulation of the hip was subsequently performed on account of recurrence of the disease, followed by sinuses and hectic fever; one of these died four days after the operation. In one of these cases the acetabulum and the whole of the ilium were removed at the same time. This patient improved for a year or so, but returned later with persistent sinuses, and died in hospital a few days after an operation performed with the object of bringing about their closure. Five cases returned with slight recurrence of disease necessitating further operation. Forty-three cases were found to be well, and with the limb in good position when they returned from two to six months later to have the plaster removed.

As regards the mortality: Out of the 40 cases traced there were 12 deaths; 2 died in hospital of tuberculous meningitis, 9 died within six months of general tuberculosis, and the twelfth eighteen months later from the same cause.

With regard to the present condition of the remaining patients who have been traced, the results were good in 19 cases—that is to say, the general health was excellent, the hip ankylosed, no sinuses, the scars completely decolorized, and any shortening, adduction or flexion only very moderate. Out of these 19 cases the exact amount of shortening has been ascertained in 15. It was found to vary from ¾-in. to 3 in., the average being 1¾ in. The shortening was, of course, partly due to the diminution in the length of the femur, and partly to its displacement upwards. Fortunately, the patient with 3 in. of shortening had no adduction, and only very slight flexion, so that he was able to walk exceedingly well. He had ¾-in. added to the sole and 3 in. added to the heel of the boot; there was no scoliosis.

In the cases where the results were less satisfactory, the shortening was aggravated sometimes by flexion, sometimes by adduction, and occasionally by both, but in only one case was the deformity sufficient to call for a

subsequent osteotomy. In one case—a girl aged 15, whose hip was excised seven years previously—there was found to be 5½ inches of shortening, 4 inches of which were due to actual shortening of the femur. There was slight flexion, a good deal of lordosis, and two small sinuses. She was well nourished, and her general health was excellent. Strange to say, she had been going about all these years without any addition to the boot, and had been using crutches all the time. With the addition of a 4-inch patten to the boot, there is no doubt she will be able to dispense with the crutches. The only other patient who uses crutches is a girl, aged 12, whose hip was excised six years ago. There are 3 inches of shortening, along with considerable flexion and lordosis. The condition is further complicated by the presence of sacro-iliac disease.

It would seem from these statistics that the reported amount of shortening following excision of the hip has been exaggerated. Fortunately, the growth of the femur takes place more especially from the lower epiphysis. In many cases the shortening is due to upward displacement and adduction, and, as I have already pointed out, this can be to a large extent prevented by the technique I have recommended. In cases in which there is marked adduction at the time of operation, the adductors should be divided when the hip is excised.

The age of the child is no contraindication to excision. For example, a child, now 11 years of age, had its hip excised when it was only 1 year and 8 months old. There is now only 1½ in. of shortening, and she walks exceedingly well. It must be insisted, however, that in very young children the disease runs a more acute and rapid course, and the prognosis is on the whole less favourable. They are more likely to die either of general tuberculosis or tuberculous meningitis.

Elbow-joint.

Turning now to the elbow-joint, we find there have been 54 excisions of this joint during the ten years. While the disease occurred with about equal frequency in the two sexes, it was found that the right elbow was affected in 32 instances, the left in 22, the difference being due, probably, to the greater use of the right arm. In 67 per cent. of the cases the disease began before the age of 5 years, while in 32 per cent. it showed itself within the first two years. It would appear, therefore, that the age of incidence of tuberculous disease of the elbow is lower than in the other large joints, and it is possible that this may be due to the earlier functional activity of the upper as compared with the lower extremities, and to the greater liability of the former to slight traumatisms. As a result of this early age incidence we find that a relatively large proportion (55 per cent.) of the excisions were done in children under 4 years of age. Taking the whole series of cases the average duration of conservative treatment before operation was eight months. In 28 cases the disease was complicated with abscess formation, while in 10 cases there were sinuses.

In 14 cases the disease was primary synovial; in the remaining 40, one or other, or all three, bones were also involved. The humerus was involved in 20 cases, the ulna in 13, the radius in 3, while in 8 cases more than one bone was involved. While in many instances the disease was so advanced that it was difficult to say definitely whether it had begun in bone or in synovial membrane, there remained quite a number of cases where the appearances presented at the operation pointed to the joint having been involved secondary to a primary focus, more especially in the lower metaphysis of the humerus. The reason why the elbow-joint is so liable to become early involved secondary to a primary focus in one of the metaphyses is that the epiphyses at the elbow are so small that the metaphyses are consequently intra-articular. In exceptional cases the osseous focus becomes localized and encapsulated, in which case it may often be dealt with without opening into the joint; especially is this the case in regard to the upper end of the ulna. In other cases the primary metaphyseal focus spreads up the diaphysis, but such cases do not fall to be considered in this discussion. In those cases, however, in which the disease had spread both into the joint and up the diaphysis it was necessary to combine excision of the joint with a subperiosteal resection of as much of the diaphysis as was diseased. Clinically, the degree to which the diaphysis is involved is indicated by the length of the thickened portion of the diaphysis, the thickening being due to the deposit of new subperiosteal bone, just as occurs in tuberculous dactylitis. If the radical treatment be undertaken before the tuberculous focus has reached and destroyed the periosteum, the resected portion of the diaphysis is usually re-formed, so that the shortening is not so great as might be anticipated, and a useful limb almost invariably results in spite of the extensive nature of the operation. When, on the other hand, the disease is allowed to progress until the tuberculous process has involved the periosteum, the operation is very prone to result in a flail, though moderately useful, joint.

In excising the elbow-joint Kocher's method by an external J-shaped incision was almost invariably employed. In separating the triceps from the olecranon its continuity with the periosteum was maintained whenever possible. After separating the triceps, it was found an advantage, especially when the olecranon was diseased, to remove this process before reflecting the soft parts off the condyles, as by this means the lower end of the humerus is more easily cleared. If there be no focus of disease in the humerus, it is sawn across at the level of the upper part of the epicondyles, the resulting sharp corners being removed. If a focus of disease be revealed on the sawn surface, it often suffices to remove it by thorough curetting. If, however, the focus be more diffuse, the periosteum is separated and the bone is sawn at a higher level, well clear of the disease. In some cases it is impossible to remove all the disease without dividing the bone through the lower part of the medullary cavity. It is well to remove the coronoid process as well as the head of the radius, whether these bones be diseased or not, otherwise a stiff joint will almost invariably be the result. The whole of the diseased synovial membrane should be removed, care being taken to leave behind none of the pouch between the triceps and the back of the lower part of the humerus. At the floor of the wound is the diseased synovial membrane covering the anterior ligament. As a rule, it is necessary to remove this ligament along with the synovial membrane. Occasionally, however, the diseased membrane may be curetted and the ligament left intact. Unless special care be taken diseased synovial membrane is very liable to be left in the recessus sacciformis which surrounds the neck of the radius within the orbicular ligament.

If there be no primary focus in the upper end of the ulna, the plan recommended by Kocher may be adopted—namely, to saw off the articular cartilage so as to leave a concave surface. Before applying the saw, the anterior ligament, along with the insertion of the brachialis anticus, should be slightly separated subperiosteally from the front of the coronoid process.

When the disease involves the upper part of the shaft of the ulna as well as the olecranon, the bones of the forearm must be resected to a level well beyond the disease. After splitting the periosteum longitudinally, the ulna may be shelled out, either from above downwards, after opening into the joint, or from below upwards before the joint is opened into. The radius, whether diseased or not, should be divided at the same level as the ulna, care being taken not to injure either the biceps tendon or the posterior interosseous (deep radial) nerve. The edges of the split periosteum are united with catgut sutures. In more advanced cases, where the disease has extended through the capsule, involving the periarticular surface, and invaded the structures around the joint, the removal of all the infected tissue is a matter of great importance. Freedom from recurrence, and, what is more important, the avoidance of a subsequent amputation, depends very largely upon the thoroughness with which this part of the operation is carried out. The presence of sinuses still further complicates the operation.

As regards the after-treatment, in a case of average severity in a young child, the writer is in the habit of keeping the forearm extended and supinated for the first fortnight or so, complete rest being ensured either by bandaging the limb to the side of the chest, which is thus converted into a splint, or by placing the arm at right angles to the trunk and applying light weight and pulley

extension, the extension tapes being stitched to a leather glove from which the fingers have been removed.

During the next fortnight the elbow is kept alternately flexed and extended for a period of forty-eight hours. At the end of a month the arm is supported in a sling, and the child is encouraged to begin to use it.

If the joint shows signs of becoming flail, the limb should be fixed in plaster-of-Paris in the flexed position for some weeks. If, on the other hand, it be evident that ankylosis is going to result, the arm should be fixed in plaster-of-Paris for some weeks at a little less than a right angle.

As regards the results, in practically all the cases the wound was healed when the patient left the hospital, the average stay in the institution after operation being twenty-nine days. Of the 54 excisions, 34 have been traced. Of these, 6 died subsequently of general tuberculosis from three months to two and a half years later. One of these had also tuberculous cervical glands, while in another the axillary glands were tuberculous. In none of the 6 was there any family history of tubercle, and the probability is that they were cases of bovine origin.

Some degree of local recurrence occurred in 8 cases, 1 of which falls to be classed among the deaths. Only 1 required subsequent amputation. Of the remaining 6 the recurrence took the form either of an abscess or sinus, with slight disease in the subjacent bone. In all of these healing was brought about by a comparatively trivial secondary operation, but unfortunately 5 of them cannot be traced up to date, and in the 1 that can be traced the elbow was found to be ankylosed at an obtuse angle.

In 6 of the patients whose present condition cannot be ascertained the reports last obtained were all very satisfactory.

When we come to the 34 cases that have been traced and examined quite recently, we find that 10 may be classed as distinctly good results—that is to say, the range of movement at the elbow was good and the muscular and weight-lifting capacity very satisfactory. The elbow was ankylosed in 6 instances; at a right angle in 3, with pronation and supination retained in 2; at an obtuse angle in 3, with pronation and supination also retained in 2. The patients with a right-angled ankylosis could put their hand to the mouth as well as button the collar. In 7 cases the joints were somewhat flail, so that passive movements could be made in preternatural directions. While this was the case the patients were able to execute active voluntary movements, apart from those entailed in lifting all but light articles. In 1 case the limb was so flail as to be almost useless. In 1 patient there was considerable cubitus valgus, but the movements and muscular power were both good.

With regard to the shortening, the average amount was $1\frac{1}{2}$ in. ($\frac{1}{2}$ in. in humerus and 1 in. in forearm), the maximum being $2\frac{3}{4}$ in. and the minimum $\frac{1}{2}$ in. It appears, therefore, that the amount of shortening after excision of the elbow for advanced tuberculous disease in children can hardly be used as an argument against the operation. The reason for the comparatively slight amount of shortening is that in the case of the humerus growth takes place chiefly from the upper epiphysis, while in the bones of the forearm it proceeds chiefly from the lower epiphyses. This is all the more fortunate because in excising the elbow all the epiphyses of the joint are completely removed.

With regard to the results obtained by excision of the elbow as compared with those following excision of the knee, it may be said that the former are better than the latter in the presence of extensive osseous disease, because in the elbow a useful limb may be obtained in spite of the removal of the epiphyses along with the ends of the diaphyses. In the knee this cannot be done without giving rise to extensive shortening, and, in all likelihood, to loss of stability as well. Hence the one secondary amputation after excision of the elbow as compared with twelve after excision in the knee.

It must, I think, be admitted that the only way in which conservative treatment can possibly bring about a cure in a case of advanced tuberculous disease of the elbow is by the joint becoming ankylosed, and in the majority of cases this condition is brought about only after suppuration and sinus formation, and the prolonged and tedious treatment which these complications entail. By excision, on the other hand, not only do we arrest the disease, but, as the statistics show, in the majority of cases we are able to procure for the patient a movable joint.

Ankle-joint.

Of the 29 cases of tuberculous disease of the ankle-joint operated on during the decennium already mentioned, the disease was primary synovial in 6 cases, while in 23 cases it was both synovial and osseous. The astragalus was involved in 15 cases, the os calcis in 5, the tibia and fibula in 2, and the scaphoid in 1. In those cases in which it was manifest that the disease was osseous in origin, the primary focus was almost invariably situated in the head or neck of the astragalus.

In 13 of the cases the disease began in children between 2 and 4 years of age, while in 21 out of the 29 cases the operations were performed in children between 1 and 4 years of age. Seventy-two per cent. of the cases had an abscess (generally at the outer aspect of the ankle) at the time of excision, and 30 per cent. were complicated with sinuses.

With regard to complete removal of the disease, this can be satisfactorily effected by adopting Kocher's plan of dividing the anterior and external lateral ligaments of the joint and then completely dislocating the foot inwards. For this purpose a long J-shaped incision is made at the outer aspect of the joint. The two peroneal tendons are divided and turned aside. Exposure of the interior of the joint is so free that there is no difficulty in removing the whole of the diseased synovial membrane. If a focus be present in the astragalus, it is readily dealt with, and, if necessary, the whole bone may be removed. The removal of all the disease having been effected, a point of great importance is to see that the foot comes into the right-angled position without a tendency either to inversion or eversion. The ultimate functional, as well as cosmetic, result depends largely on the accuracy with which this step of the operation is carried out. If the astragalus itself is not diseased, all that is necessary is to slice off its upper articular surface in such a way that the remainder of the bone fits accurately into the tibio-fibular arch, which is also denuded of cartilage. When it is necessary to remove the astragalus completely, the upper articular surface of the os calcis should also be removed, and its breadth must be reduced by chiselling off the sustentaculum. If this precaution be not taken, permanent deformity may result from displacement outwards of the foot with a corresponding projection of the internal malleolus. It may be necessary also to shorten somewhat the external malleolus and to gouge away a little of the outer surface of the os calcis so as to leave a small hollowed-out surface to receive it.

The next important point is to see that during the after-treatment the bones are kept accurately and firmly in position so as to obtain either an osseous or a firm fibrous ankylosis. For this object I am again in the habit of using a long square nail, which is introduced through the skin of the heel and then driven through the os calcis and remains of the astragalus (if this bone has not been completely removed) up into the tibia for a couple of inches or so, care being taken to see that the assistant is meanwhile holding the foot in the best possible position. Before closing the wound the divided peroneal tendons are sutured and replaced behind the external malleolus. In cases where there is a mixed infection, drainage is provided by passing a tube across the front of the ankle beneath the anterior tendons, and bringing it out through a buttonhole opening just in front of the internal malleolus. The nail is removed after three weeks, and the ankle is then put up in plaster-of-Paris.

The result of such an operation for tuberculous disease of the ankle cannot be regarded as satisfactory if the patient needs subsequently to wear any form of support. This will not be required if both malleoli are retained, and if the foot is more or less firmly ankylosed. If in addition to this stability the foot is also in good position—that is to say, at a right angle, without either inversion or eversion—the result may be regarded as very satisfactory, and is finally preferable to any form of disarticulation at the ankle joint. One great advantage of this operation in children as compared with adults is that in the former the ankylosis at the ankle-joint, if complete, is largely compensated for by the development of an increased

amount of movement at the anterior and mid-tarsal joints.

With regard to my own results, of the 29 cases in which excisions were done, 25 have been accounted for. Two died within three months of operation, 1 from bronchopneumonia, and 1 from tuberculous meningitis. One, who had also hip-joint disease, died a year later from general tuberculosis. In 6 cases amputation was subsequently performed for recurrence of the disease; 5 of these cases have been traced, and in each instance the patient has a good stump and is able to get about well; their general health is excellent.

Of the six amputations it is interesting to note that four of them were complicated with sinus formation and mixed infection at the time of operation, so that here, just as in the other joints, we see the importance of not allowing sinuses to form before proceeding to excision of the joint. I do not wish to infer from this that the presence of sinuses necessarily contraindicates excision; as a matter of fact, in 4 out of the 9 cases which had sinuses excision was followed by a good result; in the ninth case the patient died.

In each of the 5 cases which could not be traced the hospital records showed the condition to be very satisfactory some months after the operation.

Of the 15 cases which have been traced and recently examined, there were 2 in which the ankylosis was not complete, slight flexion and extension being permitted. In 1 case only was there a discharging sinus; in the other 14 the wounds were firmly healed and the scars completely discoloured. In every case the patient was able to walk well without the aid of a support of any kind.

As regards the position of the foot, in one instance there was a slight amount of equinus, which, according to the skiagram, appeared to be due to the remains of the head of the astragalus preventing further dorsiflexion on account of its being fixed to the region of the anterior border of the lower end of the tibia. One case had a tendency to varus, while in 4 instances the foot had taken up a slight valgoid position with increased prominence of the internal malleolus and a tendency to flat-foot. In 1 case in which both ankles were excised, but the astragalus not completely removed, the os calcis pointed more downwards than normal. The astragalus was completely ankylosed both to the tibia and to the os calcis. The patient, however, walked well, although she was inclined to "stump" upon the heel. There was a slight degree of talipes plantaris owing to an arching downwards of the foot in front of the mid-tarsal joint, an attempt, no doubt, to compensate for the alteration in the axis of the os calcis. In the remaining cases the results were excellent and the foot was in good position.

As regards the effect of the excision on the length of the limb, the shortening varied from almost nothing to 1½ in., the average being not quite ¾ in. In some cases the operation had no effect upon the length of the foot, while in others the shortening varied slightly, ⅝ in. being the maximum. In no case was it necessary to make a uniform thickening of the sole of the boot, but in those cases where there was slight valgus deformity it was found an advantage to have the sole thickened on the inner side.

Formerly, Syme's amputation or one of its modifications used to be almost the routine operation for advanced tuberculous disease of the ankle; even at the present day many surgeons do not look upon excision of the ankle with favour, partly because of the difficulty of removing all the disease, but mainly, no doubt, on account of the unsatisfactory after and functional results which have been obtained.

I think, however, the above results fully support the contention that in excision of the ankle we possess a means not only of preserving the foot but also of retaining its usefulness.

When we come to realize that the excisions I have referred to in this paper were only performed at an advanced stage of the disease, I submit that the results fully bear out the wisdom of having resorted to radical measures. My own opinion is that if the same cases had been treated by conservative and less radical means we should have had a much higher percentage of amputations and of deaths, and the survivors on the whole would have had less useful limbs. In those cases in which a useful limb would have been obtained by non-operative means the duration of the treatment would require to be infinitely longer than would have been necessary if radical measures had been attempted.

The last point I wish to emphasize is that in these advanced cases the general health of the patient begins to improve much more rapidly after the disease has been removed than is the case when conservative means are employed. Nothing in the course of my investigations into the after-results of these cases has impressed me so much and so favourably as to find that almost without exception those patients who have survived and been cured of the disease are now in robust health.

While, therefore, I am convinced of the great benefit to be derived from radical means in advanced cases, I am equally satisfied that these operations will be less frequently called for now that the profession has begun to realize the importance of early diagnosis, and that a cure is generally to be obtained, at this stage of the disease, by conservative treatment in the open air. It is, perhaps, too soon to state definitely how far the administration of tuberculin and the application of *x* rays contribute to the cure.

	Excisions.	Good.	Useful.	Bad.	Amputations.	Deaths.	Not Traced.
Hip ...	59	19	4	3	3	12	19
Knee...	63	24	5	1	12	4	18
Elbow	54	10	15	1	1	6	21
Ankle	29	9	4	1	6	3	6
Total	205	62	28	6	22	25	64
Percentage ...		30	13½	3	10½	12	31

DISCUSSION.

Mr. A. H. TUBBY (London) said: The conservative and climatic treatment of tuberculous disease of the joints and bones has received, and most deservedly so, a great deal of attention lately, and the time has come when the position as it is to-day should be carefully considered. The Section is to be congratulated on the opportunity of hearing a paper by Mr. Harold Stiles which is very original and illuminating. Nevertheless, two points must prove to be of the greatest importance. One is the fact that whilst in children their response to general measures is great, there is very little tendency in them to the formation of a barrier of sclerotic tissue around the affected area, and it therefore follows that operative interference on them is likely to be followed by the dissemination of tubercle into the healthy and cancellous vascular spaces of bone in the neighbourhood of the operation, with the probable advent of that disastrous condition of diffuse tuberculous osteomyelitis. The second point is the guide afforded by carefully-taken stereoscopic Roentgen-ray pictures. By them we are enabled to ascertain the exact locality of the tuberculous deposit, the direction of its spread, and the response or otherwise of the infection to palliative or conservative treatment. Upon data such as these, obtainable by direct observation and not only upon clinical inference, must depend the course which shall be adopted—whether it is operative or conservative. As to the knee-joint, if operation is required, even in children, I give the patient excision over every other form. What is wanted is a firm, stable limb, free from disease, and this can be secured by excision. Mr. Stiles referred to a plastic method of utilizing the patella in this operation, and advocated screwing the femur, tibia, and the patella together. I think that osseous union is best secured thus, and that the cause of fibrous ankylosis is that movement is allowed to take place at an early date between the sawn bones. I agree with Mr. Stiles that shortening of the leg following excision has been made too much of. With regard to the hip-joint, it is some years since I performed in children the formal operation of excision of the hip. I have done it in adults, and then fixed the upp r end of the femur in the acetabulum and in the abducted position, according to Mr. Stiles's valuable suggestion. At the ankle I believe better results can

be obtained by conservative than by operative methods. At the elbow, where the great object is to preserve as much movement as possible, if operation is decided upon, I advocate and perform excision. Finally, I wish to point out that the practice and the bias of the surgeon in any direction depend to a large extent upon the class of case he meets with and the conditions under which he is compelled to treat them. I am, however, convinced that if all cases could be secured early and treated on climatic and conservative lines the necessity for major operations would almost if not entirely disappear.

Mr. R. C. Elmslie (London), unlike the two previous speakers, spoke not from his experience of operating, but from observations made in the invalid schools of the London County Council, upon some 2,000 cases of tuberculous disease of the bones and joints treated by every surgeon in London. He felt that it was one thing for Mr. Stiles, with his careful attention and detail in operating and after-treatment, to perform these radical operations, and quite another to advocate these measures as the method to be adopted in general by surgeons who would not give the same attention to detail. Radical operations fell into three groups: (1) Excisions (partial or complete) of the joint; (2) excisions of bones or of portions of bones: and (3) removal of local foci in the bone. The last two scarcely came into this discussion; but in relation to them the importance of routine and expert skiagraphy already alluded to by Mr. Tubby required to be emphasized. On commencing to work in the London County Council schools six years ago, Mr. Elmslie stated that he had no bias against excisions of the joints. But the results that he saw very soon made him a very strong advocate against these operations. Coming to excision of the hip, undoubtedly this in the majority of cases cured the disease. Inasmuch as the disease was in the majority of cases acetabular as well as femoral, it was not possible to remove it entirely. Possibly the cure of the acetabular disease was due to the upward dislocation which almost invariably took place, and which relieved the acetabulum of pressure. Perhaps this explained the fact that Mr. Stiles obtained a lower percentage of cures after excision than was evident in the London school children, for Mr. Stiles did his best to prevent dislocation. With regard to excision of the knee, Mr. Elmslie referred to statistics of 213 cases of old tuberculous disease of the knee collected by him. In some cases the deformity was truly terrible—for example, a boy of 10 with 6½ in. shortening and 60 degrees genu varum; a girl of 12 with 8½ in. of shortening and 40 degrees flexion; a woman of 35 with 7 in. shortening and 40 degrees genu valgum. Of 89 cases, 25 had been subjected to re-excision for deformity and 1 to osteotomy; 3 had undergone a third excision. In only about a quarter of the cases was there any other scar than that of excision. These deformities occurring after excision of the knee had been previously investigated by Hofmeister in a series of 107 cases operated upon in Bruns's clinic. His conclusion was that under the age of 9 excision of the knee was an unjustifiable operation; under 14 it was bad; over that it was a satisfactory operation. Partial excisions of the knee might lead to a fibrous ankylosis. What were the reasons for advocating these radical measures? Was it not a fault of the whole hospital system—of the attempt to treat these cases as hospital out-patients, with only occasional periods of in-patient treatment when some such condition as an abscess required treatment? These children should be treated as in-patients of special hospitals. As soon as sufficient special hospital treatment had been provided the desire to carry out these radical measures would cease among surgeons.

Mr. G. H. Edington (Glasgow) said: I have listened with great pleasure to the previous speakers, and from close attention to the remarks of Mr. Stiles, Mr. Tubby, and others I find that many opposing opinions are held. It is apparently not possible to reconcile these opinions, but I believe that the truth lies between the extremes. It seems to me that in considering the subject of operation the natural method of cure must not be lost sight of. In recovery without operation we have either bony ankylosis, fibrous union (with very limited movement), or fair movement. Of these, bony ankylosis is most satisfactory. Recurrences are not common, and if they take place it is an easy matter to treat them. In fibrous union there is slight movement, and in this case, as also in the case of joints with freer movement, there is, I believe, greater liability to recurrence, because of the probability of trauma of the fibrous tissues masking the healed foci. Again, in these cases of fibrous union there is a great probability of deformity. Ankylosis occurs in the hip-joint more frequently than in the knee and elbow, hence operation to produce ankylosis is more frequently required in the latter. In the case of the knee, stability is aimed at, and excision is the operation, with after-treatment prolonged sufficiently to obviate yielding of the bony union. As regards the elbow, it has been stated that the chief function of the upper limb is mobility as compared with the stability of the lower limb. This is quite true, but I question if the mobility chiefly depends on the elbow-joint. The movements of the shoulder, wrist, and fingers are together of greater importance. I mention this because surgeons seem to attach great importance to obtaining a movable joint after excision of the elbow. The actual power of the joint after excision is not always defined. I find that nearly always flexion is much weakened, and raising anything in the hand is accomplished by a shoulder, and even a body, movement. Then recurrence, if it take place, has a chance of invading a considerable area of soft tissue. For these reasons I am not the least disappointed if my cases of excision of the elbow proceed to ankylosis; if they do so, the position of the greatest usefulness is carefully arranged for—namely, forearm at right angles to arm and semipronated.

Mr. Edred M. Corner (London) said: When the London County Council appointed inspectors of their school children a great opportunity was afforded to us to ascertain the remote results of operations on tuberculous joints. Mr. Elmslie has taken advantage of this and has introduced to us what these are. Deformities of the knee are more frequent than deformities after operation on other joints; therefore I will largely confine my remarks to the knee-joint. Post-operative deformities of the knee-joint are, I believe, more frequent after erasion operations than they are after formal excisions. This is, I believe, due largely to the smaller percentage of instances of bony union. Deformity after erasion of the knee may occur in two periods—before bony union has taken place and after bony union has taken place. Any deformation occurring in the first stage is due to the action of the muscles of the thigh, or to the bones falling apart. After bony union has occurred deformity is due to irregularities of growth produced by irregularities in the distribution of the disease, operation, and cicatrization. These deformations are the natural result of operation, and must therefore be expected and met. They must be met by splintages. They are met by splintage in the conservative treatment of tuberculous disease of joints. This is the reason why deformities are at present more frequent after operation than after the so-called conservative treatment. Tuberculous disease of the ankle is of worse prognosis than tuberculous disease in other joints. Amputation is required in at least one-fifth of these cases.

Mr. G. C. E. Simpson (Liverpool) was in favour of conservative treatment in tuberculosis of children; it was essential where hospital beds were at a premium. If the deformity was first reduced and the child then fixed by some form of splint which an intelligent parent could attend to, it could be treated as an out-patient with every hope of obtaining a good result in the majority of the cases, even though after-treatment might need to be considerably prolonged. The cases required seeing at gradually increasing intervals at the hospital, in order to find out which parents were sufficiently intelligent and careful. In Liverpool they were fortunate in having an excellent Invalid Children's Aid Association, by whose help surgeons could provide splints, stays at the seaside for bad cases, and special food. This association also supervised cases recommended to them, and prevented them from discontinuing treatment or neglecting it by visiting the homes at intervals. They also secured continuity of treatment for those cases sent to convalescent homes by inviting the surgeons to meet the medical officer of the home at intervals. With such committees of the

Invalid Children's Aid Association, financed, if necessary, by the municipal authorities, and supplemented by special schools, conservative methods of treatment would be possible and consistent with good results.

Mr. H. J. Stiles, in reply, agreed that conservative treatment, when financially and otherwise practicable, gave admirable results; he also agreed that a high degree of skill in the surgeon was demanded for the successful performance of these difficult operations on joints. His opinion was that at least 50 per cent. of the cases of hip disease had tuberculosis of the acetabulum, as well as of the femur, and that operation should not be postponed until the acetabulum was destroyed. In conclusion, he exhibited a number of lantern slides of skiagrams of ankylosed knees and hips with tuberculosis, at various periods after operation.

DISCUSSION ON THE DYSPEPSIAS OF CHILDHOOD AFTER THE PERIOD OF INFANCY.

OPENING PAPER.

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Dyspepsia in childhood is necessarily a wide and ill-defined subject, and if we are to discuss it profitably one must begin with some sort of classification of its varieties. Many subdivisions are possible, but I propose to adopt three—(1) gastric, (2) intestinal, and (3) hepatic dyspepsia—according as the apparent seat of disorder is in the stomach, intestine, or liver respectively. It must be noted, however, that although such divisions are recognizable in the abstract, yet clinically and in the concrete, mixed cases are oftener met with in which two or more of these varieties occur in combination.

Gastric Dyspepsia.

It will be generally admitted that organic disease of the stomach is very rare in childhood. I have never myself seen, for example, a case of indigestion in a child which was due to ulcer or malignant disease of the stomach, frequent causes though these are of dyspepsia in the adult. Gastritis, however, is a form of organic disease which cannot so easily be dismissed. In the acuter form it certainly seems to be not very uncommon in childhood, but whether chronic gastritis or "gastric catarrh" is a frequent cause of dyspepsia at this period of life is more open to doubt. That such a condition is often *diagnosed* every one knows, but whether it really exists is another matter. The question could only really be settled by test-meal evidence, and that, in the case of children, is almost entirely lacking. It is noteworthy, however, that in the adult most cases of chronic indigestion which were formerly attributed offhand to gastric catarrh are now known to be due in reality to some form of functional disturbance, and I strongly suspect that this would be found to hold good of the child also. Certain it is that vomiting, which is one of the most constant symptoms in chronic gastritis, is a rare event in the dyspepsias of childhood.

It has been suggested that a slight degree of pyloric stenosis, which persists as a sequela of the hypertrophic stenosis of infancy, may be a cause of gastric dyspepsia in later childhood. I confess, however, that I am very doubtful about this. Organic dilatation of the stomach, which would be the necessary consequence of such a stenosis, appears to me to be very rare in childhood, whereas in the vast majority of cases of recovered hypertrophic stenosis which I have been able to follow there has been no lasting derangement of gastric function. I have, however, seen one or two cases of recurring vomiting in children which might own this origin, and it is a point which we might profitably discuss.

Turning to functional gastric dyspepsia, we have to consider disorders (*a*) of secretion, (*b*) of motility, (*c*) of sensibility.

(*a*) The absence of test-meal evidence, which I have already deplored, makes it unwise to dogmatize about the existence of disorders of secretion in childhood. We know, however, that hyperchlorhydria occurs in infancy, and as it is apparently common in early adult life it seems probable that it occurs in childhood also. As pain is its chief symptom, however, and as children have great difficulty in describing and localizing their sensations, it is a condition which one is rarely justified in diagnosing. The opposite condition of diminution or absence of gastric juice (achylia) is probably rare in the child, just as it is in the adult, but I have met with at least one well-marked example of it in a girl of 8 in whom it had supervened in consequence of a long period of inanition the result of hysterical vomiting and anorexia. It is not, however, necessarily associated with any symptoms of dyspepsia.

(*b*) Disorder of the motility or tonicity of the stomach is, I would suggest, by far the commonest cause of gastric dyspepsia in childhood, just as it is in the adult. Here again we lack the definite proof afforded by test-meals, but this can be made up for by *x*-ray examination after a bismuth meal. I have not myself yet made any such examinations, but it would not be difficult to do, and I would suggest it as a profitable line of research in this field. Meanwhile, and pending the collection of such evidence, I think that one is justified in inferring the existence of defective tone and motility in those cases—and every one will admit that they are numerous—in which a well-marked splash can be elicited over the stomach some hours after a meal. Children in whom this is present make up a goodly proportion of the cases commonly spoken of as suffering from "mucous disease" or the "neurasthenia of childhood." They are usually of poor physique, badly nourished, and exhibit many of the stigmata of the "morbus asthenicus," and suffer from abdominal pains and physical and mental depression.

(*c*) Of the disorders of sensibility in the stomach the most probable is hyperaesthesia (gastralgia) and it is possible that this may account for some of the cases of pain referred to the upper abdomen so often met with in children. From the nature of the case, however, the existence of gastralgia is almost incapable of proof, and there seems at least to be no doubt that in the form in which it so often occurs in young women (haemorrhagic gastralgia or gastrostaxis) it is practically unknown in childhood.

Intestinal Dyspepsia.

By intestinal dyspepsia one means a form of indigestion which is mainly characterized by such symptoms as intestinal flatulence, colic, and derangement of the bowels, either in the direction of constipation or looseness. Cases of fever of apparently intestinal origin—the so-called "food fever"—would also come into this group, and most clinicians will agree that it is a large one and embraces, indeed, perhaps a majority of the cases of dyspepsia met with in children beyond the period of infancy. The pathology of such cases is obscure, but three hypotheses seem tenable. The condition might be due (1) to defect of certain digestive ferments, (2) to the presence of an abnormal intestinal flora, (3) to a lop-sided diet which contains an excess of one of the nutritive constituents, probably carbohydrates.

I do not propose to discuss the *pros* and *cons* of each of these hypotheses in detail, particularly as we have so little positive evidence to guide us; but I would only suggest, for the sake of discussion, that the third possibility mentioned is that which seems the most likely. At all events, the great amelioration of symptoms produced in these cases by a rigid cutting down of the carbohydrates in the food strongly favours this view.

Hepatic Dyspepsia.

Disorder of the hepatic function may reasonably be inferred when symptoms of dyspepsia occur along with a deficiency of colouring matter in the stools. This, as every one knows, is not an uncommon event in childhood, and children who frequently exhibit such pale motions seem specially liable also to suffer from periodic vomiting, migraine, and so-called "bilious attacks," all of which are well-recognized intercurrent episodes of dyspepsia at this period of life. The nature of the disorder of the liver in these cases is obscure. It was suggested by the late Dr. Cheadle that one had to do with a functional arrest of bile secretion, a condition to which he applied the term "acholia." More complete analyses of the stools than

have yet been made are required before this hypothesis can be either verified or disproved, but it must be borne in mind that the absence of bile may be more apparent than real, and that the pallor of the motions may be due to a diminished absorption of fat concealing the presence of bile pigment. This is certainly the case in the condition termed "coeliac disease," in which colourless stools are such a prominent feature.

It seems possible, too, that an interference with the hepatic functions may be due to a temporary overloading of the hepatic cells with glycogen or fat, and if the Hippocratic axiom be true that "*Curationes naturam morborum ostendunt*," one would find support for it in the undoubted benefit to be derived in these cases from a reduction of the amount of fat and carbohydrates in the diet. The point is one, however, which, from its numerous implications, is well worth discussion.

I have said that the above varieties of dyspepsia, which I have briefly sketched out, are usually combined in practice to form a dyspeptic "symptom-complex," the commonest of which undoubtedly is the condition to which Dr. Eustace Smith has applied the term "mucous disease." Although we are all very familiar with this condition, its real nature is very difficult to analyse, for one has practically only got the symptoms to go upon. I would suggest, however, for purposes of discussion, that this common form of indigestion is due to a defective tone and motility of the stomach combined with an intestinal dyspepsia, the consequence of an excessive use of carbohydrates. An element of hepatic inadequacy is also frequently superadded, for many—perhaps most—of these children pass pale stools at times, and they are not infrequently the subjects of recurring or cyclical vomiting.

Etiology of Dyspepsia in Childhood.

As regards the etiology of dyspeptic conditions in childhood I would lay stress upon the importance of congenital predisposition. Many children, I think, are born dyspeptics. They come of dyspeptic and neurotic families; during their infancy they have difficulty in digesting milk, and when later childhood is reached they still continue to exhibit dyspepsia in various forms. Many of these children are examples of the condition described by Stiller as the morbus asthenicus and present the bodily configuration characteristic of that state—narrow subcostal angle, feeble muscular development, etc.—to which he has directed attention. In later life they tend to swell the ranks of the neurasthenics and nervous dyspeptics. Amongst the factors which may produce acquired dyspepsia it is common to attach great importance to dental caries. For my own part I think there is a tendency at the present day to over-emphasize this cause. At all events I have not been able to trace any constant association between caries of the teeth and the occurrence of dyspepsia. Of greater importance, I think, is the non-use of such teeth as the child has, that is, defective mastication or "bolting" of the food. That this is a fruitful source of dyspepsia in childhood I think there can be no doubt.

Of dietetic causes the chief, undoubtedly, is the excessive use of carbohydrates. A diet which contains these constituents in too high a proportion disturbs digestion in various ways, for it is bulky, it is fermentable, and it tends to make too great demands on one class of digestive ferments. Again, a diet which contains too much carbohydrate is apt to contain too little protein, and protein starvation, as is well known, tends to lessen digestive power. It is also apt to be a sloppy diet which lends itself readily to "bolting" and which favours the production of flatulence.

In these high pressure days one has frequent opportunity of noting the part played by over-strain, both physical and mental, in producing and maintaining dyspepsia in the growing child; over-anxiety about lessons or games saps digestive power at this age just as much as business or digestive worry does in later life. It is a cause which, I think, tends to become more and more operative, and to which it is the duty of this Section to direct attention.

Treatment.

If we are agreed as to the causes of dyspepsia in childhood there is little room for differences of opinion as to treatment. It is important, however, not to take too narrow a view of the subject. Dyspepsia in the child, as in the adult, is more often a symptom of general ill-health than a mere local derangement of function, and in this respect it differs from the dyspepsias of infancy in which local factors are usually of most importance. Hence in treatment one has first to regulate the whole life of the patient, and this embraces the consideration of the hours of work, of play, and of sleep, and, in fact, a critical study of the whole environment. I am strongly convinced of the immense value of change of air in all cases of chronic dyspepsia in childhood, although its *modus operandi* is not always clear. It usually involves, however, a respite from the tyranny of lessons, along with more exercise in the open and the mental stimulus of change of scene. All of these no doubt play a part in bringing about that quickening of the general metabolism which reacts so favourably upon digestive power. As to the relative advantages of seaside and mountain air there is room for divergence of opinion, but I would only say that for my own part I think that mountain air is to be preferred in most cases.

Dietetic rules I would regard as second in importance to general hygienic measures, and would only state in general terms that in the great majority of cases what is required is the construction of a better balanced diet, in which the carbohydrates are not over-represented, along with the proper regulation of meals and education in mastication.

Drugs are of minor importance, but in most cases aperients are required, and do more good than any other medicinal agent. Alkalis, rhubarb, and bitters—especially nux vomica—are all very helpful in their own sphere, but acids and ferments are rarely called for. Ferruginous tonics and such preparations as cod-liver oil and malt extract, which are on the border line between drugs and foods, must be employed with great discrimination.

I am aware, gentlemen, that I have dealt in but a brief and sketchy fashion with what is a very large subject, but my object has been to point out the gaps in our knowledge and to present as many points as possible for criticism and discussion rather than to describe fully conditions with which everyone here is already familiar.

DISCUSSION.

Dr. H. R. HUTTON (Manchester) said: I desire first to express my indebtedness to Dr. Hutchison for his presentation of the subject in so large and comprehensive a way. On a few only of the many points raised do I propose to touch. In my experience those children who recover from the early conditions of congenital pyloric stenosis do not in later years suffer to any marked extent from dyspepsia. Imperfect and irregular contraction of the stomach, as revealed by the x rays in conjunction with bismuth meals, is certainly present in some cases of dyspepsia associated with pain and a tendency to vomit. In other cases of dyspepsia the pain appears to be caused by irregular circulation through the intestine, due apparently to the binding down of the coils of intestine by adhesions, as shown by x rays and bismuth. Dental caries, by leading to deficient mastication, is, in my opinion, a frequent cause of dyspepsia. Hurrying children through their meals, both at home and in school, acts in the same way and commonly leads to dyspepsia. Rest before meals I look upon as an important part of treatment. Heredity of the dyspeptic diathesis and of rheumatism is very often marked in these cases. Variety in diet I look upon as essential.

Dr. C. PAGET LAPAGE (Manchester) said: I agree that cases of gastric ulcer are very rare in childhood. I have only seen two cases which I should regard as likely to be what is usually called gastric ulcer, and those were in girls about 12 to 14 years old. I also agree that congenital pyloric stenosis very seldom causes symptoms of dyspepsia in later years. Cases I have watched after they had been cured by medical treatment have shown no symptoms, and one case, who died of intercurrent disease, still had the thickened pylorus. With regard to atonic dyspepsia, to my mind it is interesting to note the part played by the general diseases, such as rheumatism and tuberculosis, and in the hospital class of cases, especially of chronic underfeeding, in the production of a general lowering of the

bodily functions, and an atonic dyspepsia. In many cases treatment directed to the general condition, and in others a few doses of tuberculin make a wonderful improvement in the child's digestive powers. I do not wish to overestimate the part played by tuberculosis, but we have evidence that tuberculous glandular affection of the mesenteric glands is often undiagnosable and unsuspected, and many of these cases have an indefinite dyspepsia which clears up as the child overcomes the disease. Further, I have records of several patients, watched over a long period, who at first suggested periodic vomiting and had attacks at monthly intervals. But these attacks tended to become more and more frequent, and finally culminated in a general illness, which was almost undoubtedly an attack of tuberculosis. Therefore, though I feel that periodic or cyclic vomiting does occur and should be recognized, I feel that it is rare and that we should be careful not to use the term loosely to cover all cases of indefinite recurrent dyspepsia, which may be due to other causes. Much the same can be said of chronic intestinal indigestion. We all see undoubted cases of this nature, and it is recognised as a clinical entity, and by no means rare. It can also be cured by suitable dietetic measures. But my experience has been that there is often an underlying cause, and cases, which are typical in their symptoms, may turn out to be of a much more serious nature. With regard to the dietary, the influence of dental caries and the hereditary predisposition mentioned by Dr. Hutchison: I have been struck with the difficulty of getting some children, who, as infants, have been brought up and probably overnourished on foods predigested, or containing too much carbohydrate, to chew and take the wholesome foods necessary to them later on. This often leads to a tendency to dyspepsia in later life. The importance of properly exercising the salivary glands and the other digestive organs by means of chewing is to my mind great, and dentists have shown us the influence a diet containing too much soft and carbohydrate food has on the teeth. It is not only the toxic effects of the carious teeth, but also their poor power of breaking up the food. It follows that we should take care to prescribe and introduce. slowly if necessary, a diet that contains foods that need chewing and digesting, so that the digestive organs will attain proficiency through exercise.

Dr. Frank Eve (Hull) submitted that lack of tone of the stomach was often a part of a pot-belly condition, and hence the lack of tone of the muscles of the abdomen must be first cured by massage and exercises, and remembering that these muscles never get rest when in the vertical position. Hence the success of horizontal rest. He suggested that "stitch in the side"—a common complaint, especially in delicate children who take exercise after heavy meals—might be confused with dyspepsia, and be due to stretching of the mesentery of a loaded stomach or bowel. He asked the question whether air-swallowing, which was a rare but important cause of dyspepsia in adults, occurred also in children. He remembered a delicate schoolfellow who had symptoms suggestive of this condition. He submitted that in such an academic discussion on a clinical subject the definition of the disease was apt to be a pathological one. In this case the pathological definition was easy—a disorder of digestion; but this shirked the diagnosis entirely. A clinical definition of this disease based on symptoms, he submitted, was impossible in this protean disease. The assortment of symptoms suggesting dyspepsia were loss of flesh and appetite, abdominal pains, vomiting, diarrhoea, constipation, pale stools, mucus in the motions, flatulence, furred tongue, pot-belly, attacks of biliousness or fever, fetid breath, fretfulness, sleeplessness, and languidness. No single symptom or even small group of them was conclusive of dyspepsia, but might be due to other diseases, such as tubercle of the peritoneum or bowel or early tubercle in the meninges, or pretuberculous debility or phthisis, threadworms or roundworms, nervous debility, or constipation. Abdominal pain, the symptom most suggestive of dyspepsia, might be due to many other conditions, such as colic, worms, peristaltic efforts to pass mucus, tubercle, stones, "stitch," and also there was poor localization of pain in the small abdomen of the child. Hence it was well to recognize the uncertainty of diagnosis in many of these cases.

Dr. John Haddon (Hawick) emphasized the importance of food, fresh air, and exercise in the causation and treatment of dyspepsia at any age whatever and whatever the classification adopted. He held that bread, being a cause of intestinal stasis, was not a fit food for any one. The only safe diet, that of Adam in the Garden of Eden, was fruit alone. And not less important was the provision of rest for the nervous system, secured by total fasts of three days' duration. Appendicitis he regarded as a nervous reflex.

Dr. Clive Riviere (London) drew attention to a clinical group—namely, children who suffered from infancy up with want of appetite. Such children were seen, perhaps, more among the children of their friends than among their patients—the children generally of thin, sallow, pale, nervous, and restless type. Otherwise, in many cases, no definite dyspeptic symptoms existed apart from absence of appetite. They had often never been under medical advice. Such children persistently stuffed, but often with well-chosen food. It was a question whether such cases were the result of a nervous defect, neurasthenia, or whether generally an underlying gastro-intestinal dyspepsia, perhaps the result of feeding when food should be withdrawn. If the former—neurasthenia—could Dr. Hutchison say whether stuffing was the right method of treatment with a view to improving nutrition, or should such cases, with an eye to a possible catarrh, be starved occasionally as a part of treatment, and, if so, how was such starvation best arranged—whether complete starvation for a time or a lowered diet over a few days at certain intervals? The condition referred to was a burden to parents and children; and if they could be taken as a type, which their appearance suggested, it would be a great help to know at the outset what line was most safely followed. The speaker agreed that dental caries as a cause of dyspepsia was over-estimated. When it did come in it was as tenderness preventing efficient mastication and causing bolting of food; but a more important cause of such inefficient chewing was, in his opinion, the absence of training in early life caused through the too long continuance of slops.

Mr. Edred M. Corner (London) remarked that Dr. Hutchison referred to the great difficulty in obtaining objective evidence with regard to the dyspepsias of children. This was certainly so, and was an excuse for the following remarks: Any excess in amount of food above what the child can digest and absorb will be carried along the alimentary canal, and will "go bad." This "going bad" is associated with the presence of micro-organisms, which will congregate and exert their superlative effect in the ileo-caecal region. An item only, but the most dangerous, in the ileo-caecal region is the appendix—its inflammation, appendicitis. Hence I would suggest that appendicitis is an absolutely necessary corollary to continued intestinal dyspepsia. This theoretical argument has a practical basis. The removal of the appendix in some children is followed by enormous benefit (examples were cited). The appendices in these cases are often passed as "normal." But they are not so, being long, tortuous, often angulated, dilated, and frequently containing faecal matter. With these abnormalities are associated two others at least—a moveable caecum and widely distributed enlargement of the mesenteric glands. The wide distribution of the enlargement of these glands shows that the inflammation of the appendix is only an item—the most dangerous item—of the complicated condition of prolonged intestinal dyspepsia.

Dr. J. Clayton (Leamington), referring to the questions as to etiology and treatment in children's dyspepsias, asked: Are we to understand that most of these dyspepsias are really of a nervous origin, without an underlying anatomical basis? In comparison with dyspepsias of adults, where we find nervous dyspepsia without inflammatory change of a chronic or subacute nature rare, here we are asked to believe that it is the rule. Dental caries, tuberculosis, etc., or infection somewhere seem to be almost essential causes. In the so-called rheumatic cases, is this observation made merely on the result of response to salicylates? Because this inference is fallacious. As to treatment, seeing that the origin may be appendicular,

surely universal prescribing of purges is a dangerous practice. The rapid improvement when one has a child in hospital under treatment, to my mind negatives the suggestion that these dyspepsias are of a nervous origin.

Dr. R. B. McVittie (Dublin) noted that many of these cases were anaemic, very thin, and active and restless, swallowed their food too quickly, and slept badly, and had dilated hearts, and the question arose how much of the benefit following removal of the appendix was due to the rest in bed and removal from the influence of over-anxious and restless parents. A diseased appendix did not stand alone, but was associated with a more or less diseased condition of the caecum and ileum; and it was difficult to see how the removal of so small a portion of the diseased tract could have such a wonderful effect if it were unsupported by the long rest, regulation of diet, and good nursing. He would therefore suggest that a long rest under favourable circumstances, with abdominal massage and the use of olive oil, be given a fair trial before resorting to operation except in acute cases.

Dr. G. H. Hume (Newcastle-on-Tyne) asked what the treatment ought to be if an attack of appendicitis occurred in a child who was known to be liable to attacks of cyclic vomiting, and quoted a case. A child 8 years old some six months ago had a definite attack of appendicitis associated with acetonuria. Ought that child to have been operated upon? What was the risk of producing post-anaesthetic narcosis in a child predisposed to acetonuria?

Dr. R. Hutchison, in reply, put in a strong plea for logic and sanity in the discussion. To regard any great proportion of the dyspepsias as due to appendicitis, or to abdominal tuberculosis, or to a want of a fruit diet, would be, he thought, narrow and erroneous in the highest degree. A wider outlook was essential, for the causes of dyspepsia were manifold. He thought that great value attached to Dr. Hutton's *x*-ray observations in dyspepsia, and trusted that they would be continued. To treat gastric atony, a disease due to dilatation of the stomach, with the ultra-bulky fruit diet advocated by Dr. Haddon, he regarded as simply insane. The growing child demanded a diet rich in protein before all, and this could not be supplied by fruit. He believed that some few cases of dyspepsia, in children as in adults, could be cured by the removal of a diseased appendix. Such cases, however, were few, and were hard to diagnose. As regards treatment, the vast majority of dyspeptic children could be cured if the practitioner had a free hand. The use of laxatives, as distinguished from purgation, and above all a change of scene and life, were the most important items of it. Few of these dyspepsias had an organic basis. In answer to Dr. W. E. Hume, he advised that, after the cyclical vomiting was over, the child should be given glucose and an alkali, and should have the appendix removed under ether anaesthesia.

FIBROUS AND FIBRO-CYSTIC OSTEITIS.

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The occurrence of benign cysts in the long bones has long been recognized. But their diagnosis and treatment have received too little attention, so that we still find them mistaken for sarcomata, and sometimes see amputation carried out where conservative measures would suffice.

The more common varieties of bone cysts are intimately connected in their pathology with fibrous osteitis; in fact, there are good grounds for suggesting that the two conditions are different manifestations of one disease. The several varieties of pathological changes found may be classified thus:

1. Localized fibrous osteitis. A distended shell of bone exists, partitioned by trabeculae, the contents consisting for the most part of a cellular fibrous tissue. In this are small portions of bone which show evidence of active deposit by osteoblasts, and of active absorption by osteoclasts. Small fragments of cartilage may also be present, and there may be patches of myxomatous degeneration and even of necrosis.

2. Localized fibro-cystic osteitis. A condition similar to the first, but including small cysts.

3. Generalized fibro-cystic osteitis (von Recklinghausen's disease). A similar condition occurring in many of the bones of the skeleton.

4. Cystic osteitis. Single, or more rarely multiple, cysts, tending to expand the bones only in their later stages, and often leading to spontaneous fractures. These fall into two classes:

(*a*) The cyst has no definite lining.
(*b*) The cyst has a lining which may be well defined, and capable of being peeled from its interior, or may simply consist of altered bone. In either case the wall shows microscopically the changes of fibrous osteitis.

Other cysts occur in the long bones, more particularly those which result from the degeneration of endosteal sarcomata, myelomata, chondromata, and myxomata. But these do not seem to have any clear relationship to fibrous osteitis.

The following five cases illustrate fibrous and fibro-cystic disease:

Case I.

E. O., a boy aged 9, on May 12th, 1909, fell and fractured his right humerus immediately below the surgical neck. A skiagram taken in the ordinary routine showed that the fracture had occurred through a cystic space in the bone. There was slight uniform expansion of the bone, the upper limit of the space being ¾ in. below the epiphyseal line; the outline of the cavity was sharp, the bone around not sclerosed; a clear thin shell of bone covered the cavity, except where interrupted by the fracture, and the cavity itself was not divided by trabeculae.

A diagnosis of endosteal sarcoma was made, and on May 24th an exploratory operation was performed. On removing a portion of the outer wall of the cavity the latter was found to extend vertically for about 2 in.; it contained a little viscid blood-stained fluid. The interior was scraped, a little soft tissue coming away. A frozen section cut immediately showed spicules of bone surrounded by osteoclasts, with large intervening areas of young and cellular fibrous tissue. Unfortunately no permanent sections were made. The wound healed well; no splint or after-treatment except massage was adopted.

A year later the arm was strong and well; the humerus could still be felt to be expanded at the site of the disease. The skiagram showed that there was still a small cystic space chiefly on the inner side, and that the bone around was sclerosed.

In May, 1912, three years after the fracture, a skiagram showed that the cystic space was larger and more central in position; the sclerosis around was slight; the upper margin of the cyst was now about 2½ in. from the epiphyseal line, so that it has been displaced downwards considerably by growth.

Case II.

C. R., a boy aged 7, fell on November 28th, 1910, and fractured his left humerus just below the surgical neck. A skiagram showed the presence of a cystic space, similar in all respects to that found in Case I. On December 15th, the fracture having united, the cyst was opened by the removal of a portion of its outer wall, and the interior curetted; practically nothing could be got away, the cyst being lined by hard bone. The wound healed quickly, and the arm was treated by immediate massage and movement.

A skiagram taken on January 2nd, 1911, showed abundant callus formation under the periosteum and some sclerosis above the cyst.

These changes were more evident by January 18th, at which date the new periosteal bone was sufficient to produce an apparent expansion of the bone. By December 29th, 1911, a small space was still present on the inner side of the bone, with a little expansion of the bone and an appearance of trabeculation of the cyst. There was considerable sclerosis of the bone on the outer side of the cyst at the point at which the wall had been removed.

In a skiagram taken on May 24th, 1912, eighteen months after the operation, the cyst had enlarged; its upper margin was now 1¾ in. further from the ephipyseal line than it was in the first skiagram.

Case III.

A. S., a boy aged 14, on September 12th, 1910, broke his right humerus in throwing an india-rubber ball. A skiagram showed a cyst at the site of fracture, just above the insertion of the deltoid.

The cystic space in this case showed slight evidence of trabeculation; otherwise it exactly resembled the other cases; the upper margin of the space was about 1 in. below the epiphyseal line. The cyst was not explored, but the splint was kept on and the arm massaged for six months; a good strong arm resulted.

A skiagram taken on September 26th showed abundant periosteal callus. One taken a month later showed good union with an apparent expansion of the bone and sclerosis around the cyst. By November 9th the cyst showed a definite trabeculated appearance, as if bone trabeculae had grown into the cavity from the impacted fragments. In March, 1911, this appearance was still more evident. By September, 1911, one year after the

fracture, the bone showed a moderate expansion, there being now little sclerosis, and the cystic space being apparently subdivided by trabeculae of bone, the appearances being now very like those in the next case. Since that time the condition has not altered.

CASE IV.

E. B., a woman whose exact age was doubtful. In 1880, at the age of 15 (?) was admitted at St. Bartholomew's Hospital, with the history that two years before she had fallen and injured her right thigh; she was able to get up and walk home, but the pain continued for some weeks. Ten days before admission she again injured the hip, since then there had been much pain, and a swelling had appeared.

A hard swelling was found in the upper part of the right femur, as if the bone was thickened by about 1 in. It was slightly painful, but hip movements were free. A diagnosis of chronic periostitis of the femur was made.

Two years and four months later she was readmitted, her age being now given as 16, six months before she noticed that the right thigh was bent. There was then a sudden bowing outwards in the right femur about 3 in. to 4 in. below the great trochanter, the bone being thickened at the bend; the tissues around were hot and slightly tender. The right thigh was 1¾ in. shorter than the left, the whole limb was, however, 2¾ in. short (this probably alluded to the total apparent shortening.) Under ether Mr. Smith, by the exercise of slight force, fractured the femur; he thought that there was disease at the point of curvature. A long splint was applied, the shortening was then ¾ in. On returning from the convalescent home four months later the girl walked without crutches, but with a slight limp; there was not more bowing, but the bone was more thickened at the bend; the shortening was now 1¼ in.

The patient was next seen by me at the Metropolitan Hospital on July 7th, 1907, twenty-nine years from the time of the first injury; she came for the provision of a high boot, but walked with crutches and put very little weight upon the limb. The shortening was now 3½ in.; the femur was much thickened in its upper part and bowed outwards. There was fixed adduction at the hip-joint, but except for this the movements at this joint were free. A skiagram showed that the neck, trochanters, and upper 3 in. of the shaft of the femur were expanded, rarefied, and curved; the expanded area was subdivided extensively by trabeculae. The lower limit of the diseased area was sharply marked off from the rest of the shaft. The history given was so inaccurate as to lead to the supposition that the condition had arisen quite recently; a diagnosis of endosteal sarcoma was made, and amputation advised. This was refused, and the patient lost sight of for eighteen months. She then returned, and the condition was found to be absolutely unaltered. Having in the meantime seen the patient of Mr. Robert Jones (Case v), I was able now to make the diagnosis of fibrous osteitis, and I advised the correction of the deformity by the removal of a wedge. This was, however, refused. Since that time the patient has been under observation from time to time, and the condition has not altered in any respect.

CASE V.

J. O., a boy of 10, came under the care of Mr. Robert Jones in June, 1906. He had a fall upon the leg some (? six) years before, there being, it was said, no fracture. The tibia had commenced to bend after this. The middle of the shaft of the bone was very greatly thickened and bent almost to a right angle. At this point the tibia was very greatly expanded, the expanded area being subdivided by trabeculae. An exploratory operation was performed, and the deformity corrected by the removal of a wedge of the diseased tissue. In June, 1912—six years after the operation—the leg was straight and strong, the tibia being a little thickened. A skiagram shows that there is still an area of expanded and irregularly trabeculated tissue which shows a transverse line across it apparently at the site of the operation.

The wedge of tissue removed was sent to me by Mr. Jones. It was covered by a thin shell of compact bone. The deeper part consisted of fibrous tissue of varying density with occasional spicules of bone, these showed signs of extensive absorption by osteoclasts, while in places there was also active deposit by osteoblasts. Small areas which macroscopically looked like cartilage consisted of dense fibrous tissue with a whorled arrangement. The whole tissue was very vascular.

In all the forms of fibrous and fibro-cystic osteitis the onset, as far as can be accurately traced, occurs in childhood or adolescence. Several cases have been recorded at a later age, but it is difficult to prove that in these the condition has not originated in childhood. For there is often so little disability and so few symptoms that until some accident calls attention to the condition it is apt to be overlooked. Bloodgood analysed the cases recorded in which there might have been a late origin, and concluded that there was very little evidence to prove that the condition could originate after adolescence. In Case IV of my series, if the old notes had not been obtainable, it might have been concluded that the pathological lesion in the femur had originated in middle life.

Situation.—This has been carefully analysed by Bloodgood and by Silver. Cysts have been found in almost every long bone, but they most frequently occur in the *femur*, *humerus*, *tibia*, and *fibula*. In these they arise most often, possibly always, near the epiphyseal lines, the upper end of the humerus and of the femur being the most favourite spots. It must be remembered, however, that a cyst which originated near the upper epiphyseal line of the humerus in a child of 8 will have moved some considerable distance down the shaft by the time that growth is complete. This point is well illustrated in Cases I, II, and III in the series. At the upper end of the femur there is little growth, so that a lesion in that situation will not tend to be displaced.

Fibrous osteitis most frequently occurs in the femur, usually at the upper end; its next commonest situation is in the tibia.

Symptoms.—Cysts of the long bones most often produce no symptoms until a spontaneous fracture occurs; occasionally the cyst causes expansion of the bone so that a swelling occurs, and advice is sought for this. Very rarely there is pain. In fibrous osteitis the first symptom is either swelling or deformity, the latter being due to bending of the softened bone. Here, again, pain is absent or slight.

In cases first seen on account of a fracture, most often the cyst is discovered in a skiagram taken in the ordinary routine. Less frequently a swelling is noticeable at the site of fracture. In cases attending for swelling or deformity there is a more evident reason for taking the skiagram upon which the diagnosis must ultimately depend. The differential diagnosis is of the greatest importance. The other conditions that are most likely to give rise to difficulty are endosteal tumours (sarcoma myeloma, and chondroma) and central abscess (either tuberculous or subacute septic). Possibly, also, central focal tuberculosis, central gumma, echinococcus cysts, fracture without displacement and with callus formation, and periostitis may give rise to trouble. But these should, as a rule, be easily distinguished by the skiagram.

The important points in the diagnosis of a cyst are:

1. In the history, the absence of pain or swelling except in the later stages, the perfect function of the limb up to the time of fracture, and the absence of muscular wasting.
2. The bone is not altered in length.
3. In the skiagram the cyst is evenly situated in the centre of the shaft, there is often no expansion, the cavity is not extensively divided by trabeculae, there is no sclerosis of the bone around, but the cyst is completely covered in by a thin shell of subperiosteal bone, and there is no point at which this shell is broken through, unless by a fracture, and finally there is no periostitis.

In true sarcoma there is more often pain, swelling, and wasting of the limb. In the skiagram the tumour is not necessarily quite central, is not so even, and tends to burst through the shell of surrounding bone.

The same remarks apply to myeloma, except that this does not tend so easily to burst through its capsule; in this also the skiagram shows a very definite division of the cavity by trabeculae.

Enchondroma of the long bones is extremely rare, if the tumours of the phalanges are excepted. There is a possibility that the few recorded cases of cysts of the phalanges in which cartilage and myxomatous tissue have been recognized in the contents are really cases of cystic degeneration of enchondromata, and are not analogous to the other cysts of the long bones. In a case of enchondroma of the upper part of the shaft of the humerus lately in St. Bartholomew's Hospital under the care of Mr. Gask the condition closely simulated the three cases of cyst recorded above.

The patient was a boy aged 11, who had a painless swelling of the left humerus, just above the insertion of the deltoid, which had certainly been present for a year. It had only become painful after an injury a fortnight before admission. There was evident atrophy of the muscles, but the function of the arm was good. The skiagram showed that the tumour was not quite central, that it had expanded the bone on the outer side, was subdivided by trabeculae, and that there was a little sclerosis of the surrounding bone. A diagnosis was not definitely made, but the tumour was thought to be a sarcoma. An exploratory incision showed the tumour to be solid, so the length of the humerus containing it was resected.

Looking at this case after operation, it appears that the wasting, the irregular expansion of the bone, the trabeculation, and the sclerosis around were all against the diagnosis of cyst. The appearances in the skiagram,

however, very closely resembled those of the partly healed cysts in Cases I and II in the series described above.

In central abscess there is, of course, usually pain, swelling, and muscular wasting. Very occasionally, however, an abscess may closely simulate a cyst.

A boy, aged 13, attended St. Bartholomew's Hospital for a painless swelling of the left forearm, of five months' duration and slow growth. There was no history of injury or other cause. The swelling consisted of an expansion of the radius; there were no inflammatory signs, and except for full extension the movements of the wrist were free. The radius was a little longer than that of the other arm. A skiagram showed the bone a little expanded by a cyst-like space, which was not quite central in position. There was a little sclerosis around, and the space was not subdivided by trabeculae. Upon removing a portion of the wall of the cyst, the contents were found to consist of thick caseous pus, which was sterile on culture. The cavity was swabbed out with carbolic and healed well.

The diagnosis in this case was in doubt up to the time of the operation. Looking back at it, three points should have helped in the diagnosis of abscess—the position of the cavity (not quite central), the sclerosis of the surrounding bone, and the lengthening of the radius as compared with that of the opposite side.

Fibrous osteitis most often has attention called to it by the presence of swelling or of deformity. In the skiagram there is evident expansion of the bone, with a thin shell of bone around. The area is extensively subdivided by trabeculae, and is very uneven in density. There is a sharp line between the diseased area and the neighbouring bone. The condition closely simulates myeloid sarcoma, and in the absence of a history of long duration a diagnosis may not be possible until an exploratory operation has been carried out. As a rule, however, both cysts and fibrous osteitis stop short at the epiphyseal line, whereas myelomata tend to infiltrate the epiphysis itself.

Most writers upon the subject emphasize the difficulty of diagnosis of fibrous osteitis and of cysts, and state that a final diagnosis is only possible after exploratory operation and microscopic examination. Whilst this is to some extent true, in the large majority of cases a diagnosis can now, in the light of experience, be made by means of careful clinical and skiagraphic examination. In the series of five cases described above a correct diagnosis was so made in the second and third cases of bone cysts, and in one case of fibrous osteitis after the second such case had been seen.

Pathology.

This has been extensively studied by many observers. Virchow's hypothesis was that the cysts are due to a degeneration in cartilaginous tumours. Whilst this is possibly true of some of the cysts of the phalanges, the extreme rarity of chondromata of the larger long bones renders it improbable that the more ordinary type of bone cyst could originate in this way. Further, although small fragments of cartilage have been found in fibrous osteitis, these have been so small and so intimately bound up with the other tissues as to make it very improbable that cartilage was the original tissue present.

A traumatic origin for the cysts is assumed by some. But although an accident is a frequent incident in the history it is most often a late occurrence.

The third hypothesis is that cysts arise from liquefaction in a localized patch of fibrous osteitis, that in fact the two conditions are manifestations of one disease. In favour of this are the similarity of situation, the occurrence of both conditions in young subjects, and the microscopic appearances in the walls of the cysts. The progress of Case III recorded above suggests another possibility in at least some cases.

In this patient the skiagraphic appearances at the time of the fracture are characteristically those of a cyst, the space being clear and showing very little sign of trabeculation. A year later, however, the appearances closely resemble those of a fibrous osteitis, the diseased area being extensively subdivided by trabeculae; is it possible that the cyst has been transformed into fibrous osteitis as the result of the fracture? It is probable that many of these cysts have escaped recognition in the past; they are most often found incidentally in the routine skiagraphy of fractures, and unless all fractures are so skiagraphed, cysts at the site of the fracture are almost certain to be missed. A cyst of the upper end of the femur could not progress far without a fracture occurring; might not this accident transform the cyst into a solid fibrous osteitis, and so explain the frequency of this condition in the femur? Such an explanation gives us no further insight into the pathology of the two lesions; it is only thrown out as a further suggestion concerning their relationship. Beyond the opinion that fibrous osteitis is an inflammatory lesion, we must at present acknowledge that we know nothing of its pathology.

Treatment.

The most important point in treatment is that this must be strictly conservative. Curettage, crushing of the cyst wall, or resection of the affected portion of the bone are the measures usually advocated. In the light of experience even resection seems to be an unduly severe measure which should not be called for in the treatment of a bone cyst. For after curettage even the thinnest shell of remaining periosteal bone seems to suffice to maintain the proper continuity of the bone until sclerosis has taken place.

In Cases I and II curettage has undoubtedly effected a functional cure, but in each the cyst is still present, and is in fact enlarging. In the third case, in which after fracture no treatment other than splinting and massage were carried out, a functional cure has also resulted, but the pathological lesion is still present, although it has altered greatly in appearance, and it is as large as ever.

In any future case of cyst I shall adopt curettage with crushing in of portions of the cyst wall. Resection, if carried out at all, should be done subperiosteally.

In fibrous osteitis, as illustrated by Cases IV and V and by a case reported by Mr. Lawford Knaggs, the disease may last over many years without causing great disability, so that conservative treatment is again called for. Correction of the deformity by force or by operative measures may apparently be safely carried out, for in Case IV union occurred after Mr. Smith's manipulations, and in Case V the wedge-shaped osteotomy carried out by Mr. Jones has had a most successful issue. In the latter case not only has good strong union resulted, but in addition the disease seems to have been arrested.

In Mr. Lawford Knaggs's case, after the disease had lasted from adolescence until the age of 53, a sarcoma arose in one of the affected bones. This appears to be an instance of a sarcoma arising in "an abnormal tissue in a state of ill-regulated activity, which continues in this condition for many years, and shows no tendency to cure." It is strictly analogous to the instances of sarcomata of the bones arising in osteitis deformans.

LITERATURE.

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ON SPASMODIC CONTRACTION OF THE PERONEI IN FLAT-FOOT.

BY

G. C. E. Simpson, M.B., B.C.Camb., F.R.C.S.Eng.,

AND

Naughton Dunn, M.A., M.B., Ch.B.Aberd.

In 1902 Mr. Robert Jones described a form of flat-foot due to spasmodic contraction of the peroneal muscles, and he has since demonstrated it on numerous occasions to visitors to his clinic. Nélaton and other Continental surgeons also recognized the importance of the condition many years ago, and some indeed suggested that such contraction had a greater part than faulty functional use in the causation of flat-foot.

The presence of contraction of the peronei as a complication of flat-foot is recognized in most of the recent orthopaedic textbooks, and even by some of the students' manuals of surgery, but detailed descriptions of the condition are not given; this is the more unfortunate as peroneal spasm is found to be very common in flat-foot, when once attention has been directed to its existence, and the condition is very resistant to ordinary methods of treatment.

In the last three years about 120 cases have been treated at the Royal Southern Hospital, Liverpool.

Cases occur in both sexes, and nearly 90 per cent. of the patients are between 14 and 20 years old. In 35 per cent. there is a history of sprain or injury, and no doubt owing to this 62 per cent. of the cases occur in males. In many others the onset appears to be determined by the change from school life to an occupation which involves long hours of standing.

The first symptom in these latter cases is often pain on walking after the patients have been standing for a long period; the duration and severity of the pain increase till it is almost constantly present, and swelling of the feet commences.

In some early cases there may be merely valgus of the ankle without any loss of the arch of the foot; in others there is a little dropping of the arch; the deformity cannot be rectified actively or passively, owing to slight contraction of the peronei, unless the patient's attention be diverted from his foot.

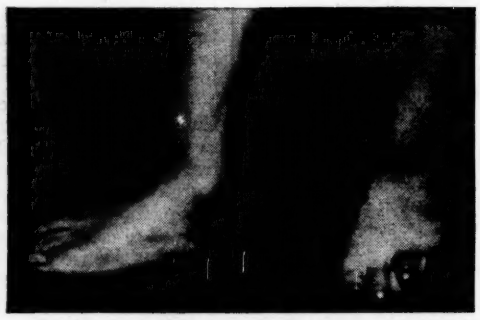

Fig. 1.—Severe double peroneal flat-foot. The loss of the arch and abduction at the mid-tarsal joint are well seen. On the left side the peroneal tendons are prominent.

In later stages the peroneal spasm is more marked, and there may be oedema or thickening of the sheaths of these muscles—the foot is rigid and the general appearance is that of osseous flat-foot. Inversion by ordinary force is practically impossible and the attempt causes severe pain. If the surgeon, while holding the foot firmly, makes the patient alternately flex and extend the knee and engages him in some interesting conversation, he will find that inversion can be accomplished by a sudden forcible twist. It will be found that the arch is restored and no osseous changes are present; on relaxing the grip the peronei at once cause a return of the deformity and the attempt to again invert causes severe pain. Under an anaesthetic the spasm relaxes, the foot is no longer rigid and appears normal.

In the most advanced cases some degree of osseous change is superimposed; in these cases complete adduction at the mid-tarsal joint and restoration of the arch is no longer possible, even during anaesthesia, without the use of great force, though the foot can be inverted at the ankle-joint.

Fig. 2.—Double peroneal flat-foot.

Fig. 3.—Same case as Fig. 2; shows rectification of the arch by forcible manipulation.

At all stages pain and tenderness on pressure are found at some or all of the following points—the deltoid ligament, the calcaneo-scaphoid ligaments, the anterior part of the ankle-joint, the external surface of the os calcis (near the external malleolus), and the peroneal tendons. The patient often says the pain is relieved by removing his boots.

Painter of Boston has investigated the condition and finds some proliferation of connective tissue in the tendon sheaths.

Illustrative Cases.

CASE I.

Errand boy aged 14. Pain in foot at night since commencing work two years ago. Occupation involves long hours and much standing.

Right Foot.—Pain and tenderness on pressure over anterior aspect of ankle-joint and calcaneo-scaphoid ligament; valgus of ankle; loss of arch; abduction at mid-tarsal joint. Head of astragalus can be felt in the sole. Slight spasm of peronei; when this is overcome foot appears normal.

Left Foot.—No pain or tenderness on pressure. Slight valgus of ankle; good arch; no peroneal spasm.

CASE II.

Girl aged 16. Light housework only. Pain in ankles since leaving school three years ago. Has been treated by plaster and supports without benefit.

Right Foot.—Pain and tenderness over calcaneo-scaphoid ligament. Poor arch; no eversion or abduction; slight peroneal spasm.

Left Foot.—Puffiness all round ankle, especially on inner side. Pain in foot and ankle generally; no special tenderness on pressure. Very flat, everted and abducted at mid-tarsal joint. Head of astragalus very prominent on inner margin and sole—practically on ground. Peronei very prominent and rigid; when this was overcome foot could be fully inverted.

CASE III.

Boy aged 16; work one and a half years; standing nine hours a day. Six months ago began to have pain in left foot on sitting down after standing; pain now constant.

Left Foot.—Tenderness on pressure behind internal malleolus, over front of ankle and anterior tibio-fibular articulation. Pain in calcaneo-scaphoid ligaments. Very flat foot with no arch, and marked separation between sustentaculum and navicular. Marked spasm of peronei; good arch on usual manipulation.

CASE IV.

Boy aged 14, still at school. Has had no pain, but noticed foot looked flat about one year ago.

Left Foot.—No pain or tenderness on pressure. Very flat foot. Wide separation of os calcis and scaphoid. Head of astragalus ¼ in. from ground. Thickening of peroneal sheath and spasm of peronei. Full rectification of arch possible by usual manipulations, but caused great pain.

CASE V.

Boy aged 15. Butcher's boy for six months; seven to fifteen hours a day on feet. Pain in feet commenced five months ago, usually after midday, and feet were swollen in the mornings. Three months ago pain got worse, and he noticed alterations in the shape of his feet. Is now unable to work; walks with difficulty, with feet everted and abducted.

Both Feet.—Tenderness on pressure over upper and internal aspects of head of astragalus, over anterior aspect of ankle-joint and over the peroneal tendons. Very flat feet, abducted at mid-tarsal joints, and marked convex inner margins; sustentaculum and scaphoid separated by over one inch. Left hallux rigidus; right severe hallux valgus. Puffiness and oedema over peroneal sheaths and external malleoli; peronei very tense and rigid on attempt to stand on tiptoe or at active or passive inversion. Full rectification was possible by usual manipulation, but gave severe pain and caused clonus of peroneal muscles. The deformity at once redeveloped on relaxing the grip.

CASE VI.

Boy aged 15. At work one year; long hours. Sprained foot while jumping eight months ago; pain better in three weeks, but commenced again one month later. Tenderness and pain

over internal lateral and calcaneo-scaphoid ligaments. Slight flat-foot. Peronei rigid on attempt at active or passive inversion.

CASE VII.

Dock labourer, aged 22. Four months ago fell 36 ft. on to his heels; was in bed seven weeks, but since recovery has had pain in feet at night after walking.

Right Foot.—Least painful; no tenderness on pressure. Thickening of posterior part of foot; loss of arch; no peroneal spasm. Skiagram shows crushing of os calcis.

Left Foot.—Pain in os calcis, internal lateral ligament, and peroneal tubercle and insertions. Tenderness on pressure over internal lateral ligament and anterior aspect of ankle-joint. Peroneal tendons prominent and rigid; sheath not thickened. Slight inversion of foot possible, but further rectification of the arch, either active or passive, is resisted by intense spasm of peronei. Full reduction is possible by usual manipulations. Skiagram shows no bone injury.

CASE VIII.

Male, aged 30, labourer. When 12 years old was at work in a bakehouse; he had pain in his ankles after an accident. 1894: Treated for peroneal flat-foot by exsection of peronei; wore outside irons and inverted boots for six months, and was then cured. 1908: Had an injury to left ankle; pain recurred in that foot. 1911: Injury to right ankle followed by disability in that foot, and is now unable to work.

Left Foot.—Flat and everted; spasm of peronei; some osseous change. No pain or tenderness on pressure. Arch cannot be fully restored by usual manipulation.

Right Foot.—Pain and tenderness on pressure over calcaneo-scaphoid ligament and at tip of external malleolus. Flat everted foot with early osseous changes and marked peroneal spasm.

Treatment.—Exsection of peronei, wrenching and inversion in plaster.

There is another paper dealing fully with the treatment and after-treatment of these cases, so it will not be alluded to in detail.

Mechanical measures are of little avail in this condition, unless combined with operative treatment of the peroneal muscles. Whatever the etiology of peroneal flat-foot may prove to be, we would plead that it should (temporarily at least) be classified separately from other forms of static flat-foot, in order to ensure a wider recognition of its importance and of the special measures called for in its treatment.

In conclusion, we would wish to thank Mr. Robert Jones for suggesting this paper and for his kind advice and assistance in its preparation.

SPASMODIC CLUB-FOOT.

BY

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AND

NAUGHTON DUNN, M.B., Ch.B.Aberd.

THE treatment of spasmodic flat-foot is a subject which you, Sir, have made particularly your own, and you and those of us in Liverpool who belong to your school adopt methods which are not much employed or, perhaps, even approved of elsewhere; and I wish to refer to a new mode of treatment recently suggested by Mr. Naughton Dunn, one of the house-surgeons at the Royal Southern Hospital, which seems to me to break new ground in the treatment of spasmodic deformities and to be capable of further development.

In the paper read by Mr. Simpson before this Section attention was drawn to the large percentage of flat-foot associated with spasm of the peronei muscles, and it was maintained that this condition was so common as to warrant its being classified in a group by itself. If this holds good from a clinical and pathological point of view, it does so with even greater force from the operative standpoint. It is more than fifteen years since you, Sir, first showed that it was useless to attempt the treatment of this spasmodic flat-foot without operative interference, which threw the peronei muscle out of action for a shorter or longer period of time according to the severity of the case.

For this purpose there are three courses which can be followed, and they can be conveniently mentioned in order of the length of time for which they neutralize the spasm they are devised to deal with: (1) Division of the tendons of the peroneus longus and brevis, either subcutaneously with the tenotome, or better through an open incision with removal of portions of the tendons; (2) crushing the musculo-cutaneous nerve at a point just after it is given off by the external popliteal in the substance of the peroneus longus, for the purpose of producing paralysis of the longus and brevis; and (3) transplantation of the tendon of insertion of the peroneus longus to a new insertion on the inner side of the foot, with division of the peroneus brevis.

The operation of exsection of an inch of each peroneus tendon is one devised by Mr. Robert Jones.

A short incision is made behind the lower end of the fibula, and the common sheath of the two tendons is opened. It not infrequently shows signs of chronic irritation in the shape of excess of fluid or of thickening of the sheath. The tendons are isolated on a blunt dissector, cleared for the space of about 1 in., and this portion of each is removed. After the skin has been sutured the foot is wrenched round with a Thomas's wrench until it is well inverted and the ankle flexed to a right angle. The foot is then kept in this position by means of an external splint and a figure-of-eight bandage.

On rare occasions it may be necessary to tenotomize the tendo Achillis or even the peroneus tertius. The foot must be kept in inverted attitude for three to five weeks, according to the severity of the case, and then the patient may be allowed to walk, wearing a specially modified boot with an outside leg iron to maintain slight inversion. Attention must now be paid to the muscles of the leg, especially the inverters, and also to those of the sole, and massage, tiptoe and inverting exercises must be carried out assiduously. The first question which arises about this operation is naturally with reference to the subsequent union of the peronei. A good portion of the tendons is removed, and the inversion of the foot increases the gap still further. The answer to the question is that there is never the slightest anxiety about the union of the tendons, but that, in fact, there is danger, if the after-treatment is neglected, that they will unite too soon and the condition of spasm relapse. For this reason the exsection is preferable to the simple tenotomy. Every now and then one comes across a case where correction of the eversion seems to involve an amount of strain on the tendo Achillis; possibly these are cases where the tendon should have been divided, but this has not been done. The patient complains of pain running up the line of the tendon, and there is a good deal of thickening of its sheath. Relaxation of the strain upon the tendo Achillis by adding to the height of the heel of the boot is usually sufficient to deal with this complication.

The operation of crushing the musculo-cutaneous nerve was suggested by Mr. Naughton Dunn a few months ago, and has now been performed on seven cases.

An incision 1½ in. long is made a fingerbreadth below and behind the head of the fibula, the deep fascia is incised over the interval between the outer head of the gastrocnemius and the peroneus longus. The external popliteal nerve is exposed lying just under the deep fascia and running into the peroneus longus. It is traced for a short distance into the muscle, and the division into its three terminal branches is found; the musculo-cutaneous branch is then caught and crushed in a pair of Spencer Wells compression forceps. It is important also to catch and crush a small muscular branch to the peroneus longus which enters the muscle high up and is very constant; failure to attend to this detail is followed by relapse of the spasm in less than twenty-four hours. The foot is now wrenched and splinted as before.

Our experience up to the present has been that the patient is able to walk well and without pain at the end of a week, and that the foot can be inverted voluntarily. The peronei are out of action for at least six weeks, and attention to massage and the exercises for the flat-foot can be given at an early date, and the patient can be allowed to walk with a boot and iron. The cutaneous anaesthesia resulting from the nerve crushing is unimportant, being confined to a small area about the size of a crown piece in front of the ankle-joint. So far we have no reason to fear that the peroneal palsy is likely to be permanent; indeed in the case of one boy who has not devoted sufficient attention to his flat feet, the spasm has returned, and he does not walk so well as he did a fortnight after his operation.

Transplantation of the peroneus longus to the inner side of the foot is performed in exactly the same manner as it is for paralytic talipes valgus.

The foot is wrenched into good position first of all. Then the tendon of the peroneus longus is exposed through a small incision on the outer side of the foot, just before it curls round the cuboid, and is divided with a tenotome as it lies in its

groove in this bone. The tendon is again exposed through a second small incision behind the lower end of the fibula. If the common sheath is well opened and the longus tendon well cleared it is often possible to pull it through into the upper wound without prolonging this down to meet the lower incision; it is desirable to avoid connecting the two incisions, if possible, as the long wound produced thereby does not heal at all well; under any circumstances the external annular ligament should not be divided. A subcutaneous tunnel is now made with a curved periosteum detacher, leading from the wound behind the fibula to the inner side of the foot, where a third incision is made in the skin over the scaphoid and is carried down to the bone. The peroneus longus is brought through this tunnel and out through the third incision, and the peroneus brevis is now divided and the wounds on the outer side of the foot closed. The operation is completed by the stitching of the transplanted tendon to the edges of the incision in the periosteum of the scaphoid with one or two silkworm gut sutures, which should take in some of the connective tissue in the neighbourhood. The third incision is now closed and the foot splinted in the inverted position as before. The after-treatment calls for no further comment save that a longer period of rest is required to ensure that the peroneus longus has gained a firm hold upon its new insertion.

Each of these three operations seems to me to have its own advantages. The exsection method is the simplest, and is free from all possibility of awkward complications. The operation book of the Royal Southern Hospital shows that 100 cases were subjected to this operation in a period of twenty months. I am unable to give figures to indicate the results of these 100, but I can state with confidence that the percentage attending the out-patient department for a longer period than three months after the operation is less than ten. The after-treatment must be carried out most thoroughly, and any delinquency on the part of the patient is apt to be followed by relapse of the spasm, as the peronei are thrown out of action for such a surprisingly short time.

The nerve crushing is in an experimental stage; so far we have had no untoward results, and the patients can walk well and without pain at an early stage; in this way the massage and exercise treatment can be begun early, and carried on freely from the beginning without fear of relapse of the spasm.

The tendon transplantation is a fairly extensive and complicated procedure, and I believe that it should be reserved for more severe cases where the deformity is considerable, and where, owing to the length of time during which after-treatment must be continued, there is risk of return of the spasm and consequent failure. In the case of an elderly woman in whom the deformity was marked in both feet I performed the exsection operation in one foot and the transplantation in the other; the latter method met with an earlier and better result than the former.

May I touch for a moment upon the class of case with a rigid osseous flattening of the arch and peroneal spasm? I have noted four cases in which this was associated with considerable bowing of the tibia, and I have come to recognize this as a most difficult kind of case to deal with. In two of them exsection of the peronei was performed twice, and the feet were kept inverted for several weeks, only to relapse as soon as the patients had walked for any length of time, notwithstanding boots, irons, and exercises. I feel that this obliquity of the lower end of the tibia has some influence in preventing the patient from regaining his plantar arch. In the two cases referred to I ultimately removed a wedge of bone from the inner side of the foot, and was able to remodel the arch and obtain for the patients feet on which they are now walking without pain. I have to thank Mr. Robert Jones for the free use I have been able to make, not only of his clinical material, but also of his writings.

PHYSIOLOGICAL SCOLIOSIS.

By Dr. MURK JANSEN,
Leyden.

WE all know that the human spine has a tendency to bend with its convexity to the right side in its mid-dorsal part. We know this from our scoliotic patients, who mostly have the hump on the right side of the back, and in normal persons we may detect, even through the clothes, that the right shoulder blade is very often more prominent than the left. The low and high dorsal parts, moreover, have a tendency to deflect to the left side. This is confirmed by all statistics on lateral curvature, be they made in England, France, Holland, Germany, Austria, or Switzerland. So the human spine has a tendency to bend in three characteristic curves—a left low dorsal, a right mid-dorsal, and a left high dorsal curve.

If a number of straight sticks are placed vertically on end and pressure be made to bear upon them so that they bend, as many sticks will curve to the left as to the right, and graphical statistics indicating the place and the direction of the flexion will be symmetrical. This difference from the human spine must be the reason why all investigators have intuitively ascribed to physiological causes the tendency of the human spine to form the three characteristic curves, which implies that external forces causing scoliosis act as many times to the left as to the right. Cheselden, the English anatomist, who about a century and a half ago discovered the predilection of the mid-dorsal part to deflect to the right side, ascribed it to the position of the heart on the left. Bichat, half a century later, put it down to right-handedness, and during the last hundred years the balance has been between varied forms of these two opinions. However, apart from the fact that neither inversio cordis nor left-handedness are necessarily attended by an inverse tendency of the spine, both of these hypotheses are untenable; they imply that the right mid-dorsal convexity is the primary one—that is, that in cases of physiological scoliosis, where one or two of the three curves are missing, the mid-dorsal one should be the only one present; in other words, that the mid-dorsal curve by itself—that is, as a single curve—should occur oftener to the right than to the left. However, in Schulthess's graphic statistics we find that the mid-dorsal scoliosis occurs quite as often to the left as to the right.

From Schulthess's graphical statistics drawn up on 1,140 patients we may gather that four clinical forms of scoliosis show asymmetry in their statistics, the statistics of all other forms being symmetrical. The asymmetry appears to be formed by combinations of the physiological curves.

1. The left low dorsal occurs about 100 times oftener than the right low dorsal.
2. The left low dorsal and right mid dorsal about 100 times oftener than those in the opposite direction.
3. The left low dorsal and right mid dorsal and left high dorsal about 80 times oftener than the inverse conditions; and
4. We find that the left total scoliosis occurs 135 times oftener than the right total scoliosis.

The left total scoliosis, it must be observed, very often shows signs of a right mid dorsal curve, and must therefore be considered as a variant of the preceding form (3).

So, if the asymmetry of scoliosis statistics may be considered to be due to physiological forces, and we call the three characteristic curves from below upwards *a*, *b*, and *c*, we must distinguish four clinical forms of physiological scoliosis:

1. A single form (*a*) of physiological scoliosis.
2. A double form ($a+b$) of physiological scoliosis.
3. A treble form ($a+b+c$) of physiological scoliosis; and
4. The left total ($a+c$—that is, $a+b+c$—from which b is missing).

In all forms of scoliosis with asymmetrical statistics the lowest of the three physiological curves thus appears to be present. Hence the lowest of the three physiological lateral curvatures is the primary curve; and in the low dorsal part of the spine must be the asymmetrical physiological force which we are now going to point out.

All muscles of the locomotor apparatus are arranged symmetrically on the skeleton; but the muscles of the diaphragm are attached asymmetrically to the vertebral column. The crura externa and media are indeed arranged symmetrically; but they are only thin bundles. The crura interna, however, which run from the fourth lumbar vertebra up to the first, are strong muscles, and at the height of the twelfth dorsal they both bend over to the left side, so that either all or most of the bundles of the right crus internum cross the mesial plane in order to spread out in the left half of the diaphragm. Therefore every inspiration pulls the twelfth dorsal and first lumbar vertebrae to the left with greater force than to the right.

We have registered the inspiratory movements of the inframammillary regions in rickety children and found

that the left one is regularly pulled inward more deeply than the right; and a 5-year-old child under our observation with a double form of physiological lateral curvature aggravated her left low dorsal at every inspiration, even if she were lifted from the ground by the head. Hence there can be no doubt that the asymmetry of the diaphragm is the cause of the single form (*a*) of physiological lateral curvature.

But it also accounts for the other forms; the stronger pull of the left diaphragm is transmitted through the left lung, which is thus distended with greater force than the right. The apex of the chest on the left side is pulled down with greater force than on the right; and at the same time the first dorsal vertebrae are pulled to the left—in which, by the way, the bronchi take a considerable part. It must be remembered that the two lungs, elastic, distended bodies as they are, are situated in front and on both sides of the spine. It may be known that the sum of their tensions is the cause of its normal mid-dorsal backward curve; and, similarly, the difference in tension between the left lung and the right—that is, the greater tension in the left lung—imparts to the mid-dorsal part a tendency to deflect to the right side. Hence the double $(a+b)$ and the treble $(a+b+c)$ forms of physiological lateral curvature are only different degrees of asymmetrical action of the diaphragm. The left total form of physiological lateral curvature—as has been proved by Scholder, Weith, and Combe in Lausanne—in a considerable measure takes its origin in school, whereas the other forms of lateral curvature exist previously and are only aggravated by school. Hence the left total form is initiated later on in life than the three other forms of physiological lateral curvature—that is, at a time when the spine is less flexible and is, by the asymmetrical pull of the diaphragm, sooner made to deflect to the left than to bend in three curves. Hence the fourth form $(a+c)$ of lateral curvature is due to asymmetrical action of the diaphragm at a later period when the spine and its ligaments have become relatively firm (Fig. 1).

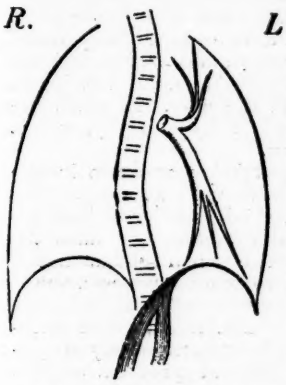

Fig. 1.—Scheme indicating the effect of the asymmetrical traction of the crura interna diaphragmatis on the spine and ribs.

The asymmetry of the diaphragm thus gives a ready explanation of the four forms of physiological lateral curvature. It disentangles the complicated puzzle which the chapter of scoliosis has hitherto presented. Moreover, it explains all other characteristic symptoms of physiological lateral curvature—

1. Why physiological lateral curvature should far more frequently consist of two or three curves than any other scoliosis—in 70 per cent. of the cases it consists of two or three curves, whereas the lumbar scoliosis (although it is situated lower in the spine) has a second curve only in 46 per cent. of the cases.

2. Why physiological lateral curvature is often accompanied by a lordosis in the dorsal part of the spine—the crura diaphragmatis have a component working in a sagittal direction.

3. Why the middle one of the three curves is most liable to enlargement so as to become the outstanding deformity. Although it has been initiated by the difference in strength between the two halves of the diaphragm, it gradually comes under the influence of the sum of the tensions in the two lungs.

4. Why in the male the high dorsal curvature is present oftener than in the female. In the former diaphragmatic inspiration is stronger.

5. Why children with severe rickets—though more in danger of getting scoliosis in general—are less often affected with physiological lateral curvature. The diaphragm pulls the flexible ribs in an inward direction without its tendinous part being much lowered, and thus without greatly affecting the vertebral column.

In other words, the flexibility of the ribs in severe rickets diminishes their resistance to the pull of the diaphragm, and thus diminishes the possible effect on the spine.

Thus the asymmetry of respiratory traction on the spine explains all phenomena of physiological lateral curvature. We should therefore speak of respiratory scoliosis and its four forms: the single (*a*), double $(a+b)$, treble $(a+b+c)$, and left total form $(a+c)$ of respiratory scoliosis.

The question arises, Why should the diaphragm be asymmetrical? Vierordt has proved that the left lung is far less easily distensible than the right; and the same holds good of the heart with respect to that part of the right lung which lies symmetrically to it. Thus, the inspiratory distension of the contents of the left half of the chest requires greater strength. So the arrangement of the crura interna in the left half of the diaphragm must be considered to be an adequate one, and is probably dependent on the left position of the heart.

It is known that in quadrupeds the heart rests on the sternum near to the mesial plane, and has its axis almost parallel to that of the trunk. In apes its base descends and its apex moves to the left in proportion as the biped gait is adopted. Thus the tendency towards asymmetry in the human spine is probably the consequence of the biped gait. Respiratory scoliosis thus probably stands on a line with right-handedness, which functional asymmetry is also considered to be the result of the left position of the heart and the consequent difference in blood supply between the right and left hemispheres of the brain.

The above considerations furnish the ground why we should forbid parents to make the children sit before they can walk. As long as the spine is tender and flexible the effect of the asymmetrical traction of the diaphragm is enhanced and accentuated by the power of gravity. After the first months of lying on its back the child should be allowed to lie on its ventral parts. It will lift the head and strengthen the muscles of the back. It will learn to crawl and creep before it stands. Thus the child should get on to its legs by its ventral parts, not by its posterior parts. The phylogenetic process of the development of the human gait should be repeated ontogenetically. By the adoption of this principle in the education of our children respiratory scoliosis, which has hitherto amounted to one-third of all cases of scoliosis, will, no doubt, largely be reduced.

IMPERFORATE ANUS WITH PERINEO-SCROTAL ORIFICE.

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Writing on imperforate rectum, Sir Charles Ball[1] considers that "it appears to be quite useless to attempt from published cases reliable statistics as to the relative frequency of the various forms of congenital malformation. Probably a considerable number of infants die annually from intestinal obstruction the result of imperforate rectum, without the exact condition having been ascertained." While this may be true as regards the rectum, it is unlikely that imperforate anus (associated or not with rectal defect) will be overlooked, and we are able with some certainty to form an opinion as to the relative frequency of the different malformations of this orifice.

Cases of anal malformation are not of very great frequency relatively to the total births,[2] but in practice they occur sufficiently often, and are varied enough to warrant a classification of the different varieties. It is not my intention here to go into the various forms which the malformation may take. I wish to describe one of the rare varieties which recently came under my notice.

Baby R., a male infant aged 2 days, was seen on January 31st, 1911, with a history of imperforate anus, but with the napkins showing the stains of meconium.

Examination showed that the anal depression was shallow and was not in normal communication with the bowel, and from it arose in the median line a nodulated ridge of some bulk

(Fig. 1). Anteriorly, this ridge was continued into the perineal raphe. The raphe, from the edge of the anal depression forwards to the back of the scrotum, was translucent, and of a blue colour, suggesting a tube containing meconium. On it, just behind the scrotum, there was a small black spot, in size rather less than the head of a pin, and although there did not seem to be any actual orifice, it seemed probable that it was from this point that meconium had escaped.

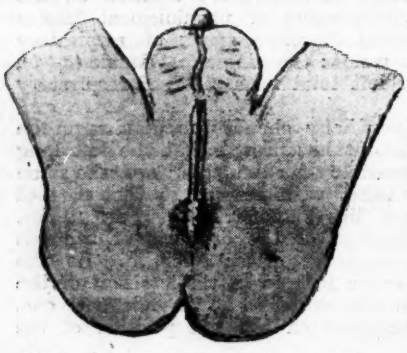

Fig. 1.—Appearance of parts when first seen.

Stripping the raphe backwards towards the anal depression with the finger emptied it, and caused the blue colour to disappear. On lifting the finger the colour reappeared from behind forwards, in a way which resembled the rising of the mercury in the thermometer. The raphe was cut across about its middle, and a probe passed along it backwards and into the rectum. The whole raphe was then excised back to the anterior edge of the anal depression, and with some difficulty a probe was passed through the orifice here and into the bowel. The proctodeal ridge was then split, and the rectal canal opened up on the probe. The mucous membrane was brought down and sutured to the skin, and a small rubber tube stitched into the canal.

The child was sent home well in about a week's time.

Microscopic sections, longitudinal and transverse, were made of the tissues removed, and showed that the raphe was tunnelled by a canal, the wall of which was composed of firm fibrous tissue and lined with stratified squamous epithelium. The anterior extremity of the canal communicated with the surface, the epithelial lining being continuous with the epidermis of the raphe. The seat of communication corresponded with the black spot noticed at the time of operation.

Fig. 2.—The parts in section (diagrammatic).

I lost sight of the patient; but I recently learnt from his mother that he had died at the age of 8 months from obstruction of the bowel. The cause of obstruction was a "lump of flesh" growing over the anus, and appearing first when the child was about 2 or 3 months old.

REMARKS.

This case raises several questions. Of these the first is whether the abnormality is anal or rectal. The microscopic sections do not show any structure corresponding to a sphincter; but the lining membrane of the abnormal perineal canal is clearly a continuation of the epidermis. Tuttle[2] postulates, in the case of anal abnormality, the presence of a sphincter, *plus* pavement epithelium extending upward in the abnormal opening. I think, however, that we may rightly assume, even in absence of a sphincter, that we have here an example of anal malformation. The absence of a sphincter is not surprising. As already mentioned, there was a normally situated, though poorly developed, anal depression. This would properly be the seat of development of the sphincter.

The next question is the relationship of the abnormal canal to embryonic structures. Its subcutaneous situation, together with the presence of the raphe immediately over it, points to its having been formed by the fusion of the external genital folds. The continuity of the raphe with the median ridge in the proctodeal depression indicates that the union of these folds has been excessive, and has extended backwards over the proctodeum. The presence of the ridge, however, does not necessarily imply complete imperviousness of the proctodeum. It is well known that in such circumstances perviousness, though incomplete, may exist, and examples have been recorded by various observers. Such have also been figured by Ball and Tuttle.[3] In these cases meconium escaped, and subsequently faeces, through an aperture on one side of the ridge. In the present case there was a proctodeal opening, which was situated in the ventral part of the depression, and was median, so that it was closed by the raphe. From it the subcutaneous canal extended forwards on the perineum, to open at the back of the scrotum. The canal was, however, too small to be of practical use, and almost complete retention of meconium had resulted.

It is not possible to be certain as to the development of the malformation; but I would suggest that there had been perforation of the ventral portion of the proctodeum with a subsequent excessive fusion of the external genital folds, and that the epiblast of the inner surfaces of these folds had, so far as the perineum was concerned, persisted to form the lining membrane of a subcutaneous canal. This canal had remained open at its anterior end, and had communicated behind with the opening of the proctodeum.

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A RECENT CASE OF LORENZ'S OPERATION, DEMONSTRATING BY X RAYS THE DEVELOPMENT OF THE ACETABULUM.

By W. S. HAUGHTON, M.D., B.Ch.Dub.

ANY ONE who makes a close and constant study by *x* rays of the changes in bone structure which accompany varying conditions, such as the growth of young bones, or the repair following a fracture, or the buttress lamellae formation which strengthens the dangerous curves of rickets, cannot help being struck by the thought that these changes are "reflex phenomena," and are the direct result of new stimuli, which may in a measure be considered as "physiological."

In the normal growth of children and young animals, it is a well known fact that the development of any structure is largely determined by the amount of functional use it gets. This amounts to a general rule, and it is not confined to the early period of life only. In adult life excessive use will at first lead to hypertrophy, and a corresponding disuse to atrophy.

There is abundant and unmistakable evidence in the *x*-ray appearances of bone to prove both aspects of this general law. For instance, if we take the growth of the lamellae of bone: under normal conditions we have the well-arranged mechanical design in which the lamellae of the bone may be divided into two definite systems, one of which is designed to act as "compression lamellae," and the other as "tension lamellae." The number and thickness of these can be shown to be approximately proportional to the activity of the limb in question, and its functional activity may then be expressed in terms of "lime salts."

If we examine the repair of bone following a fracture, especially one which has united at a faulty angle, *x* rays show us new lamellae springing into existence, to act as supports or buttresses at any weak points. These new lamellae must arise in response to forces acting along the new lines of "thrust" in the bone, created by alteration in its axis, and as such may be regarded as a "reflex deposition" of lime salts in response to new stimuli. This is eminently physiological in its character, and may be compared to the growth of bone in young animals.

If we turn to the "abnormal lamellae" developed in the rickety changes in long bones, where normal curves become exaggerated, we again find new lamellae developing at the summit of these curves, if the child is permitted functional use of the limbs. Borrowing the language of the engineers, and considering a long bone as a "beam under strain," these lamellae on the convex side of the "neutral axis of the beam" are of course in tension, and those on the concave side in compression. Thus we see the strengthening and growth of the bone proceeds along lines well defined by mechanics, and that it is the physiological result of functional use in each of the three instances mentioned above.

Lorenz has fully realized all this in his splendid conception of the "bloodless method" of dealing with "congenital dislocation of the hip-joint," and the principles which underlie his method are another example of the physiological development of bone as the result of functional use.

I need not describe the technique of the "Lorenz method" to members of this Section, who are all familiar

with it. But I would just call attention to the fact that, broadly speaking, it may be divided into two stages, the first of which is passive and the second active, so far as the child is concerned.

During the first or passive stage, the child remains three to six months in plaster; in this period the efforts of the surgeon are directed, first, to replacing the head of the femur in the normal acetabular site, and then maintaining it there. Little growth of acetabular bone takes place in this period, unless the child be unusually active in its plaster case.

The second stage of Lorenz treatment is properly described as the active stage; because in it the surgeon not only permits, but actually encourages, the functional use of the limb, by getting the child to paddle about on the floor on a suitably sloped stool. The thigh bone is, of course, restrained at a proper angle, and held up to its work on the acetabulum by a plaster case or other appliance. During this stage the surgeon just exercises sufficient restraint to maintain the good position which he obtained in the first instance. This stage of functional use is the period of physiological activity. And it is in this stage that we may expect bony development by deposition of lime salts. And it is actually in this period that we find the best *x*-ray evidence of growth taking place in the ossific centre for the head of the femur, and in the bony elements forming the acetabulum.

These skiagrams (handed round) demonstrate the development of the hip-joint, and have been selected from a number taken in a case of Lorenz treatment recently under my care. They represent certain well-defined stages in the treatment.

The first was taken just before treatment commenced in a child of 22 months. The left hip was affected. The head of the femur is seen in the usual position dislocated upwards away from the acetabular site. The shortening of leg measured 1 in. The skiagram shows well the elevation of the gluteal fold on the affected side. There should also be noted the diminutive size of the ossific centre for the head of the femur, and the apparent shortening of the neck, due to anteversion; also the flattened, deficient acetabulum.

In the other skiagrams the following points deserve attention:

(*a*) The relative size of the ossific centres for the head of the femurs.

(*b*) The relation and approximation of head of femur to centre of acetabulum.

(*c*) The backward ossification and subsequent development of bone in the cartilaginous plate at the bottom of the acetabulum.

(*d*) The backward development, and subsequent ossification shown in the upper half of the acetabulum.

(*e*) The angle between the surface of dorsum ilii and upper part of acetabulum. This is approximately a right angle on the good side, but obtuse on the affected side, and gradually approximating to a right angle as treatment proceeded.

One of the skiagrams records the condition reached after six months of treatment, and marks the transition from the passive to the active stage—that is, from bed to paddling about on the "sloped stool." This child was very active and took much exercise in bed, while in the plaster. This skiagram shows the head of the femur reduced to correct position opposite the centre of the acetabulum. Points to be noted are the growth in relative size of the ossific centre for head; also the growth of the upper half of socket, which, however, is still deficient and containing hummocks of cartilage; likewise the development of angle between dorsum ilii and socket.

A third skiagram represents the progress reached after twelve months' treatment, the latter six being active, in plaster on a sloped stool, with the leg gradually approaching the vertical position. The head and all parts of the socket have advanced in bony development, and the head is now racing its fellow of the opposite side for equality in size.

A fourth skiagram shows the condition fifteen months after Lorenz's operation, the last three months being spent in an appliance of poroplastic and steel to limit motion of hip during walking, which was freely encouraged, careful massage and passive motion of hip being employed daily.

This last skiagram shows the ossific centre for the head developed by treatment almost equally in size with the normal; the head more closely approximated to pelvis in the normal manner; the upper half of socket extending a more perfect arch of bone over the head, by functional use in carrying the weight of the body; consolidation of this bony arch; the angle between the dorsum ilii and upper part of socket has almost reached the normal right angle; and, finally, the bony development of the cartilaginous plate at the bottom of the acetabulum is now, with its fellow of the opposite side, racing in a "dead-heat" for the normal.

These skiagrams help to emphasize the value of *x* rays in appreciating at its true worth this splendidly conceived treatment of Lorenz.

DISCUSSION.

Dr. MURK JANSEN (Leyden) said: In accordance with what German authors have almost unanimously taught these forty-four years, Dr. Haughton conceives the lamellae in human bones to be due to *traction* (as on the convex side of femur neck) and to *pressure* (as on its concave side). From a few hundreds of sections made through the various bones of the body we have been led to conclude that they are the result of pressure only—namely, the pressure exerted by gravity and muscle action. In coxa vara the lamellae on the convex side of the upper femur end become thinner, or even disappear, instead of becoming thicker, as must be expected, according to Cullmann-Meyer's old theory. In ankylotic hip-joints the lamellae gradually disappear altogether. There, as in ankylotic knee-joints, the compact tissue of the neighbouring shafts of the long bones may be seen to continue through—and replace—the cancellous tissue. Thus the trabeculae on the convex side of the upper femur end should be considered as the result of pressure exerted by muscles which move the femur in the hip-joint. Bone substance, once formed, when submitted to traction only, gradually disappears.

TUBERCULOUS INFECTION AND TUBERCULOUS DISEASE IN INFANCY AND CHILDHOOD.

By C. PAGET LAPAGE, M.D., M.R.C.P.,
Physician to the Manchester Children's Hospital, Pendlebury.

DURING recent years, chiefly as a result of the introduction of tuberculin and of the tuberculin tests and of careful pathological and experimental investigation, it has been shown that tuberculous infection and tuberculous disease are far more common than had been supposed.

To make a distinction between tuberculous infection and tuberculous disease may be wrong pathologically, but clinically some such distinction is necessary. If we are to have a clear conception of tuberculosis, we must recognize the difference between an infection that has been successfully resisted and shut off and active disease which is causing general symptoms, however slight.

The work of Hamburger, von Pirquet,[1] Mantoux,[2] McNeil, Shennan,[3] and others has shown that tuberculous infection in the poorer classes of our large towns, where opportunity for infection is abundant, is almost universal, and, further, that much of it occurs during childhood. Again, pathological evidence shows that latent tuberculous disease is by no means rare.

This paper is an attempt to summarize the results of three years' work on tuberculosis in the out-patients' department and ward of a children's hospital. The methods adopted can be conveniently divided into four heads: (1) Pathological, (2) the cutaneous test, (3) the *x*-ray examination, (4) the general physical examination.

Post-mortem Evidence.

Taking first the *post-mortem* evidence based on the valuable and complete series of records made by the pathologist, Dr. Mair, during the last six years: About 50 per cent. of all cases examined *post mortem* showed macroscopic and easily demonstrable tuberculous lesions. But figures drawn from hospital statistics must not be taken as an indication of the general nature of tuberculosis in children, because in-patients are necessarily a selected class of case.

Statistics which give more correctly the general incidence of tuberculosis in childhood are easy to find; for instance, Ganghofner[4] of Prague found that, of 1,800

autopsies on children dying of causes other than tuberculosis under 1 year, latent tuberculosis was present in 7.1 per cent., from 1 to 2 years in 16 per cent., and from 6 to 8 years in 26 per cent. Morse[5] in America found that under 15 years tuberculosis was present in 25 to 35 per cent., and over that age in 65 to 75 per cent.

Evidence of a similar nature abounds all over Europe and America.

The most striking point shown by the *post-mortem* examinations on tuberculous children at Pendlebury is the frequency of affection of the glands.

Either the abdominal or the thoracic, and often both, were affected in 99 per cent., if enlarged glands were counted as tuberculous, or in 88 per cent. if caseous glands only were counted.

It is interesting to note that the abdominal glands were affected in a larger proportion of cases than the thoracic (about 10 per cent. more often). Other observers (Guthrie,[6] Shennan,[7] Still[8]) have found that the thoracic glands were more often affected, and perhaps local conditions may explain the difference.

In 30 per cent. of the cases the disease seems to have been primarily abdominal.

There was often disease of the glands, with no accompanying macroscopic tuberculous disease of the organs or areas drained by those glands; and, further, in many cases, although there was disease of the organ with accompanying glandular disease, yet in other parts the glands, and glands alone, were affected.

This evidence points to the probability of the spread of tuberculosis from one set of glands to another, and throws doubt on the theory that tuberculosis of the glands is always secondary to a lesion in the area drained by those glands.

The Cutaneous Tuberculin Test.

The tuberculin tests can, I think, be held to be specific, because experimental and pathological evidence shows such a close correlation to their results.

The interpretation of the results is not so easy; a reaction can be held to show that the tissues have been in contact with the tuberculo-toxin, but the degree of the reaction depends largely on the state of the resisting powers at the time.

Before attaching any importance to a reaction it must be noted: (1) That the reaction disappears temporarily during acute intercurrent disease such as measles; (2) that advanced cases in whom the tissues are saturated with tuberculin often give no reaction; and (3) that faulty technique, such as using too weak tuberculin or inefficient means of application, may be responsible for errors.

With these exceptions a reaction means that infection has occurred, but does not necessarily mean that the child is ill with tuberculosis. A good reaction often means high resisting powers, and many such cases are those with disease limited to the glands or serous membranes and in whom the general prognosis is good. Therefore a reaction is not necessarily of bad omen, and may be of good omen as indicating a successful power to resist tuberculosis.

On the other hand, an absence of reaction may be of bad omen; though in young children it indicates an absence of tuberculous infection.

One thousand children attending my out-patient department and in my ward at the Manchester Children's Hospital during the last three years have been tested by the cutaneous tuberculin test with 25 per cent. tuberculin. (I am now using undiluted tuberculin as recommended by McNeil[9]).

During the age period 0–2 years, 32 per cent. of all cases tested, and 14.7 per cent. of those entirely free from signs, symptoms, or history reacted; the frequency steadily increased with increasing age until during the age period 10–14 years, 60.8 per cent. of all cases and 51.2 per cent. of those entirely free from signs, symptoms, or history reacted.

It must be pointed out that, though these figures refer to the hospital type of case, they are probably below the real level, because there are difficulties of observation in out-patients, and because only 25 per cent. tuberculin was used. On the other hand, hospital children are ill children, and a larger proportion of them show tuberculosis than do normal children.

However, Hamburger and Monti[10] at Vienna, at a hospital for acute infectious diseases, obtained a reaction in at least 50 per cent. of the children. McNeil[9] in hospital children under 1 year found a reaction of 14.1 per cent., and this frequency rose with increasing age until from 11 to 14 years 55 per cent. showed a reaction. These results are practically identical with mine.

McNeil[9] also, in 170 industrial school boys, from whom active tuberculous disease had been eliminated, found a reaction in 59.4 per cent., their ages varying from 6 to 16 years.

Evidence from the X Rays.

I have been able to compare my results as regards pathological and tuberculin test evidence with figures published by other observers, but I have not been able to find a detailed analysis of a series of cases examined by the *x* rays, because their symptoms pointed towards tuberculosis, but did not lead to a definite diagnosis. In all some 150 cases were examined, most of them being of the indefinite type; a few cases of definite tuberculosis and a fair number of children attending the hospital for diseases other than tuberculosis and not giving any history or signs to point to that disease were also examined. Cases with a history of exposure to house infection were not regarded as free.

The examinations were all made by Dr. Bythell, skiagrapher to the hospital, and myself; he agrees with the conclusions expressed here and states very similar ones in his book.[11] The examination is, I think, quite reliable, and it is extremely simple and easy to perform. To ensure freedom from bias the skiagrapher should not read the report of the physical examination until after he has given his opinion of the screen picture. After he has given his report he can, while still looking at the chest, discuss and examine for special features with the physician. The evidence of these examinations is very striking, and is, in my opinion, another important link in the chain of evidence that goes to show the extreme frequency of tuberculous infection in childhood.

Of 120 cases 29 were negative, 23 suspicious, and 68 positive. The mediastinal glands, as distinguished from the bronchial, showed 100 negative, 5 possible, and 5 positive. The roots of the lungs, including lesions of the bronchial glands, showed 34 negative, 18 suspicious, and 68 positive. The apices showed 112 negative and 8 positive.

In the following table the relation between the clinical examination and the *x*-ray examination is shown. A clinical examination called negative meant that the patient showed neither signs, symptoms, nor history of tuberculosis, and a clinical examination called suspicious only meant that the patient showed general symptoms and perhaps a history of infection. Cases showing localized physical signs or bacilli in the sputums were classed as positive. It must also be remembered that the *x* rays only show intrathoracic tuberculosis, and this may account for apparent discrepancies.

Clinical Examination.	Total.	*X*-ray Positive.	*X*-ray Negative.	*X*-ray Suspicious.
Negative	15	4	11	0
Possible	15	4	8	3
Suspicious...	50	27	11	12
Probable	10	6	2	2
Positive	30	27	2	1

56.6 per cent. of the children examined because they showed indefinite symptoms on clinical examination were found to have intrathoracic tuberculosis, healed or active, and the *x* rays often revealed unsuspected areas of disease.

26.6 per cent. of those free from signs, symptoms or history were found to have tuberculous lesions. The disease was nearly always at the roots, either as disease of the bronchial glands or of the lung tissue, and the apices were very seldom affected.

Thus, in children, pulmonary tuberculosis usually starts at the roots and spreads therefrom.

The frequency of intrathoracic glandular tuberculosis is now well known, but it is the bronchial glands that are most often affected, and the space in front of the spine, which is held to represent the mediastinum, can be seen

to be clear in most cases. Therefore mediastinal glands large enough to cause percussion changes must be regarded as rare. Knowing, then, that tuberculosis nearly always starts at the roots, we can appreciate the difficulties of diagnosis from ordinary physical examination' and I have been impressed with the difficulty of diagnosing early disease which may be quite evident on the screen. The *x* rays are therefore of great value in clinching the diagnosis. Further, they very often distinguish active from passive disease.

Summary.

In the light of such results as these—and I could quote many more convincing sets of figures concerning the pathological and tuberculin test evidence—our ideas of diagnosing tuberculosis in childhood must change, as indeed they have been changing for some years.

We must not wait even for definite physical signs, far less for bacilli in the sputum. We must not look to the apices, and even a negative physical examination of the roots must not be held to exclude intrathoracic disease. Neither must we wait for the appearance of masses in the abdomen, nor of fluid before diagnosing abdominal tuberculosis.

If we are to succeed in our treatment we must use the special methods of diagnosis, in conjunction with the evidence from the history and physical examination. I by no means wish to underrate the value of the physical examination; on the contrary, in conjunction with a careful history, it forms our only reliable basis for selection. But our suspicions should be aroused by what are slight general symptoms—as cough, loss of weight, irregularity of temperature, rapid pulse and pallor, and especially by a history of infection.

Perhaps I might mention that pallor is by no means always associated with anaemia, many cases of marked pallor showing a good percentage of haemoglobin and red blood corpuscles; possibly it is a want of tone of the blood vessels or the skin.

Tuberculous infection is therefore almost inevitable in large towns, and it must often occur in childhood without giving rise to illness sufficiently pronounced to attract attention; or the indefinite illness, if noticed, is put down to some other cause, such as rheumatism or underfeeding. Occurring at an early age tuberculous infection often leads to fatal results, but later in childhood it may lead only to a temporary debility and then become quiescent. Such quiescent disease, which can only be diagnosed from the history, the *x*-ray examination, and the tuberculin test, is not infectious, and since it is so widespread it is not necessary to notify every case that gives a reaction to tuberculin. To do so would be to overwhelm those engaged in preventive measures and to stultify their efforts.

Tuberculous disease in children is very different from that in adults. All through childhood it tends to become generalized, and a large proportion of the deaths are due to tuberculous meningitis. The glands are very often affected, and the disease may make considerable progress in them before it spreads to other parts or gives localizing symptoms. Therefore we must not look for definite physical signs before making a diagnosis of tuberculous disease. We must rely on the history, the general symptoms, and the special methods of diagnosis if we are to begin treatment early.

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A SYSTEM OF PRINTED ANAMNESIS QUESTIONS FOR CHILDREN OUT-PATIENTS.

By F. C. EVE, M.D.Cantab., M.R.C.P.Lond.,
Physician to the Royal Infirmary and to the Children's Hospital, Hull.

A YEAR ago I was oppressed by the monotony of the limited number of questions which it was necessary to ask the parent at children's out-patients.

To avoid this I devised the following scheme of anamnesis questions to be asked by the nurse. All questions are so couched as to be answerable Yes or No. If the answer is Yes, the nurse underlines that question in black ink, which shows up clearly on the red print.

Continuation sheets are used which prevent any writing on the back of papers. This should always be avoided as involving confusion of sequence and dirty papers.

The paper has three subdivisions, the first applying to all children, and the other two being filled up in cases of infants in arms and tonsil cases.

After one year's trial of these forms, I have noticed only three questions which I should like to add if there were room—that is, inquiry as to faints, bilious attacks, and worms—but the mother is unlikely to forget the latter.

The advantages of these forms, which I should now be very loth to dispense with, are: (1) More complete histories than otherwise possible; (2) the mother has read over the questions and has prepared her answers (or should have done); (3) great gain of speed; (4) the doctor knows exactly where to glance for his information.

The system is, of course, inapplicable to the multifarious diseases of adults, though, perhaps, it might be suitable for gynaecological cases.

The limited number of questions which have thus been found to embrace the routine diseases of childhood is in itself instructive.

No. Day of Attendance. If from the Country State Village and Doctor.
Name. Age.
Temp.
Date.

What are the CHIEF troubles you wish your child cured of?
How long?
Any PAINS? In Head, Chest, Body, or Limbs? and for how long?
If DIARRHOEA, how many motions a day? How long?
Any VOMITING? If so, how long has it lasted?.....weeks or days.
Any COUGH? ,, ,, ,, ...weeks or days.
Any loss of Appetite? ,, ,, ...weeks or days.
Much loss of Flesh? ,, ,, ...weeks or days.
Much loss of Sleep? Any night terrors? Is it languid?
Does it generally want much opening medicine, or little, or none?
Is there any CONSUMPTION amongst the child's relations?

INFANTS require these further particulars:
Is it breast-fed? Every.....hours, or irregularly?
Is it bottle-fed? Every.....hours, or irregularly?
What do you put in the bottle?

Any solid food given?
Are the MOTIONS unhealthy? Very Offensive? Any Curds?
Slime? Green? Much Wind? Blood?
Is it ravenous? Always crying? Teething?
Is it taken out for an airing every fine day? or.....times a week?

If a Mouth-breather or School TONSIL CASE:
Is the child troubled with snoring? Frequent Colds?
Frequent sore throat? Deafness? Running Ears?

(*The above symptoms will be noted by the Nurse; any further symptoms must be told to the Doctor.*)

[*Space for doctor's notes.*]

DATE.	PRESCRIPTIONS.	PROGRESS.	WEIGHTS.
year			

The following printed leaflet is handed in the waiting hall to the mothers of new patients:

KINDLY READ THIS AT ONCE.

Mothers of new patients are requested to read through the questions printed inside their books at once.

Think out the answers carefully, so as to be ready to reply without wasting valuable time.

If you don't, you may lose your turn.

When it is your turn next to go before the Doctor, take care:

1. To have the child's clothes all ready to slip off the chest and body.
2. When your bell rings step briskly across to the Doctor's chair.
3. Don't make him have to repeat his questions.

Remember that 100 people may suffer for any time you may waste.

SECTION OF NEUROLOGY AND PSYCHOLOGICAL MEDICINE.

LANDEL ROSE OSWALD, M.B., President.

DISCUSSION ON THE PSYCHOSES OF THE CLIMACTERIC.

OPENING PAPERS.

I.—R. PERCY SMITH, M.D., F.R.C.P.

THE psychoses of the climacteric—that is, of the period of life in women at or about the time of cessation of menstruation and termination of the reproductive function—form an important group of cases. I do not intend here to discuss the question whether there is a "climacteric" in men.

According to the statistical tables of the Lunacy Commissioners for England and Wales, published in their sixty-fifth annual report to the Lord Chancellor, the climacteric period is given as a cause or associated factor in 8.2 per cent. of all the cases of female patients admitted to public and private asylums and registered hospitals in the years 1907, 1908, and 1909. When division is made into the two classes of private and pauper or rate-paid patients, it is found that mental disorder at the climacteric exists in a larger proportion in the private than in the pauper class, the figures for the former being 11.2 per cent. of admissions and for the latter 7.8 per cent. It is also an interesting fact that in the private class the percentage of admissions of climacteric cases, namely, 11.2 per cent., is considerably larger and, in fact, nearly double that of senile cases, which is given as 6.3 per cent., whereas in the pauper class the percentage of admissions of senile cases is 1 per cent. higher than that of climacteric cases, the latter being 7.8 per cent., as compared with 8.8 per cent. of senile cases.

This does not necessarily imply that there is a smaller proportion of cases of senile insanity in the private class, but no doubt is largely accounted for by the well known fact that there is in the poorer class a tendency for senile cases to be sent to asylums more readily than in the private class, in consequence of the burden which a patient who has ceased to be a wage earner, and for whom the expense of special care at home cannot be afforded, entails on the family. In the private class a senile patient can be more readily provided for and nursed at home. When the two classes are taken together the percentage of senile cases (8.5) is slightly higher than that of the climacteric cases (8.2).

From the greater incidence of climacteric cases in the private class it would appear that there is a factor at work which does not operate in the pauper class, and in my opinion this is to be found in the fact that in many of the former unfulfilled hopes, unemployment with much time for introspection and for dwelling on the symptoms connected with the change of function, consciousness that the prime of life has passed, and that henceforth the individual is entering on the downward slope of life, lead to morbid thoughts and the development of a psychosis.

It is interesting that of 1,871 cases of insanity in women admitted to Bethlem Hospital in the eleven years 1885 to 1895 inclusive, of which I have notes and which passed under my observation and care, the number of cases in which the climacteric was considered to be a cause or associated factor amounted to 118, or 6.3 per cent. of the admissions.

As these were all patients of the private class the question arises why they should show a much smaller percentage of climacteric cases than appears in the whole group of private cases summarized in the tables of the Lunacy Commissioners. It should be said, however, that the patients at Bethlem Hospital form rather a special class, as a very large proportion of them being scantily provided with this world's goods come from the class of professional workers, such as governesses, school teachers, female clerks, milliners, musicians, artists, actresses, and nurses, whom the climacteric finds already provided with a métier in life, and the necessity of earning a living, and would, therefore, have less time for introspection and sitting with their hands folded.

Social Condition.

When we consider the civil state of climacteric cases admitted to asylums it will be found that statistics show a much higher percentage of married women and widows than of single women. In the *Journal of Mental Science* for April, 1894, my former colleagues, Dr. Edwin Goodall and Dr. Maurice Craig, published statistics relating to 102 patients at Bethlem Hospital and 120 at Wakefield Asylum, showing that of the former 42.1 per cent. and of the latter 21.5 per cent. were single women. In addition to my 118 Bethlem Hospital cases I have in the last fourteen years seen 101 climacteric cases in consulting practice, of whom 34.5 per cent. were single women. It would seem, therefore, at first sight that climacteric insanity is much less likely to occur in single women than in those married or widows, and specially so in the pauper class. But it appears by the tables of the Commissioners that, whereas in the general population in the decade from 45 to 54 there is 1 single woman to about 6 married or widows, the proportion rises to 2 to 5 in cases of climacteric insanity. The conclusion, therefore, is that, taking all classes together, single women are more likely to break down at the climacteric than married women or widows, although the actual number of occurring cases is greater in the latter.

Age Incidence.

The age at which the menopause occurs varies greatly in different women. Among my Bethlem Hospital cases was one woman in whom the catamenia ceased spontaneously at 38 and another at 39 after oöphorectomy. Among those occurring in private practice was one of the age of 38 who had ceased to menstruate for two years, and in whom the "change" was said to have begun three years before that; another who broke down with climacteric beginning at 38½. At the other end of the scale may be mentioned, among others over 50 years of age, one who had ceased to menstruate at 52, and who subsequently had an attack of mental depression every year until she came under observation at 61; another in whom the menopause occurred at 54 and was followed by mental depression, and a third in whom the menses were still occurring irregularly at 59.

Of great interest are the cases in which the menopause came on early as the result of operation. In addition to the one mentioned above among my Bethlem Hospital cases I have seen the following in private: One at 34, after removal of ovaries for tumour; one at 38, after ovariotomy 3½ years before. In other cases insanity has supervened after operation at a time when the menopause might perhaps have been expected shortly, as, for example, one woman of 47 in whom double ovariotomy had been done five years before; one of 51 whose uterus had been removed four years before by vaginal hysterectomy for severe haemorrhage, ovaries not removed; one of 49, whose menses had ceased since excision of the uterus and one ovary three years before; one of 45, whose uterus and ovaries had been removed five years before; and one of 47, whose ovaries had been removed five years before.

The average age of my private cases has been 48.9, as compared with Goodall and Craig's 46.7 for Bethlem cases and 47.5 for Wakefield Asylum cases.

Heredity.

In my 101 private cases I have found a heredity of insanity, neuroses, alcoholism, and drug habits in 58 per cent., a rather larger proportion than in the figures given by Goodall and Craig. In 6 cases, in addition a child of the patient had either broken down mentally before the mother or had been congenitally imbecile. In 8 per cent. there was a family history of alcoholism either direct or collateral.

It is of course much more easy to obtain a family history in private than in pauper cases, and the above figures compare with those given by the Commissioners from all institutions in England and Wales, by which it appears that out of a yearly average of 655 first attack cases admitted where the climacteric was assigned as a cause, in 29 per cent. was there associated a heredity either of insanity, epilepsy, neuroses or alcoholism.

Correlated Factors.

According to the same tables in 39 per cent. of the cases the climacteric was assigned as a cause without any correlated factor, but in 19 per cent. there was mental stress either sudden or prolonged, and in 7.6 per cent. the patient was alcoholic. Of my 101 cases in private 6 were alcoholic and 3 had drug habits.

Previous Attacks.

No figures are given by Goodall and Craig as to the frequency with which the patients had previously suffered from insanity, but in going through my 118 Bethlem Hospital patients (which cover the cases they summarized) I find that in 41, or 34.7 per cent., there had been one or more previous attacks, and in my 101 private cases I find a percentage of 33 of previous attacks. In many of these the previous attack had been at some critical period.

The following are instances of this:

CASE I.—First attack at 17; second attack at 35, puerperal; third attack at 52, beginning within a year of the menopause, hypochondriacal melancholia; recovered.

CASE II.—First attack sixteen years before, puerperal; second attack after husband's death; third attack at 49, catamenia ceasing, melancholia; recovered.

CASE III.—First attack at puberty; second attack at 50, three months after menopause, melancholia, suicidal; recovered.

CASE IV.—First attack after love disappointment; second after father's death twenty years ago; third at 47, catamenia ceasing, melancholia.

CASE V.—First attack fifteen years ago, puerperal; second at 49, catamenia ceased 5 months, melancholia.

CASE VI.—First attack at 17, recurrent depression since, at 49 melancholia with self-accusation and delusions of persecution.

CASE VII.—First attack at puberty; a second attack later; third at menopause at 48, simple melancholia; recovered.

In many of the others there had been one previous attack or recurrent attacks of depression or excitement or alternating states, so that the case might be classed in the "manic-depressive" group.

With regard to the question as to whether insanity occurring at the climacteric should be regarded as a special form or may, at any rate in many instances, be merely conditioned by the fact that a mind which has previously been disordered from one cause or another is likely to give way again at an epoch when the nervous system is specially liable to be unstable, it is important to take note of Professor Kraepelin's altered views on this subject.

It is well known that he has hitherto limited the term "melancholia" to cases occurring at the climacteric and the pre-senile period of life. In the eighth edition of his *Psychiatrie* (vol. ii, p. 534, published in 1910) he refers to the fact that a further investigation of his cases of melancholia led to the conclusion that in many instances the patient had had other similar attacks, often abortive or at long intervals, and that many of those regarded by him as already permanently damaged had recovered after long periods. He expresses himself, therefore, as no longer able to ascribe an independent importance to his cases of melancholia in the former limited sense.

In vol. i, p. 115, referring to the influence of the climacteric, he says: "Dahin gehört vor allem das manisch-depressive Irresein das nicht selten in deiser Zeit erst einsetzt." He recognizes, therefore, that cases occurring at the climacteric are often instances of manic-depressive insanity which may begin at that epoch.

Forms of Mental Disorder.

All observers are agreed as to the frequency of prodromal symptoms in connexion with insanity beginning at this period.

Sir George Savage, in a paper on the neuroses of the climacteric, published in the *Transactions of the Medical Society of London*, vol. xvii, gives a comprehensive summary of these, pointing out that "any normal symptom, bodily or mental, which may occur with the menopause may be so exaggerated as to become morbid." He refers to the feelings of fullness in the head, flushings of heat, and sensations of cold, or feeling as if something had suddenly given way in the head, or as if the head were empty or the brain dead. Such feelings are, of course, common also in younger cases, perhaps especially where there has been a history of self-abuse. Again, he refers especially to uneasy feelings in the skin, leading to delusions of persecution, or to obsessive ideas of dirt and infection. Commonly there is great irritability or change of affection, and with diminished sexual function, delusions of changed personality, or hypochondriacal sexual ideas may arise. In other cases there are doubts as to the conduct of the husband, leading to delusions of jealousy. In others, on the other hand, there arises increased sexual desire either for normal intercourse or leading to self-abuse, associated with the failing reproductive function. Pelvic or general discomfort or pain may be accompanied by a proneness to alcoholism or drug habits. In single women there may be an outburst of unsatisfied sexual desire, and sexual paranoia may result.

Sir T. Clouston[1] writes of the normal psychology of the climacteric as consisting of

a lessening of sexual desire, affections change from the mate to the progeny, the imagination loses its force and fire, poetry and action are alike less craved for. The instinctive feeling of sexual difference is lessened. There is less energy and less spontaneity and originality.

Sir Felix Semon[2] considers that the menopause is by far the most fertile cause of sensory neuroses of the throat in women. These neuroses are of the paraesthetic or neuralgic type, and never anaesthetic. They may precede the menstrual irregularities or be associated with the other common symptoms of the menopause, and in some cases lead to hypochondriacal depression or suicidal tendency.

Among early symptoms related to the throat I have seen the following: "Feeling that the food stops in the throat," that the "bones and muscles of the throat are broken," "throat feels constricted," "choking feeling," "feeling that the throat is clogged up." In other cases the patient was clutching at her throat.

Dr. R. A. Gibbons, in a lecture on Pruritus Vulvae,[3] refers to the fact that

most of the cases of true pruritus vulvae are in women who are passing through, or have passed through, the climacteric period.

Goodall and Craig[4] well sum up the prodromal symptoms as follows:

Insomnia, alteration in temper, neuroses, noises in the head and ears, and deafness, hallucinations of the various senses; suspicions, jealousies, false accusations; failure of attention, impairment of memory; sexual perversions (eroticism, frigidity, masturbation, etc.).

When definite mental disorder develops there is no doubt as to the great predominance of the depressed or melancholic forms of insanity at the climacteric.

Thus, of my 118 Bethlem Hospital cases, 82, or 69.5 per cent., were classed as melancholia, and of 101 cases seen in private 69 were of that type. Of 68 cases of first attack of insanity at the climacteric, 42, or 61.8 per cent., were cases of melancholia, whereas of 33 not first attack cases, 24, or 72.1 per cent., were depressed.

Melancholia at the climacteric may present any of the usual clinical varieties. There may be simple depression with lack of energy, slowness of thought and reaction, inability to concentrate attention, lack of volition, feeling of being of no use, insomnia, headache, constipation, and desire for death; or there may be more pronounced melancholia with self-accusation of wickedness, delusion of perdition or of having committed the unpardonable sin. Again, there may be the type associated with delusions of poverty and ruin—"no money, no food, no clothes"; or the agitated, restless type with varying delusions leading to chronicity and death; or again, depression with suspicion and dread of persecution.

Very prominent are the cases of hypochondriacal melancholia, often with delusions as to the pelvic viscera or generative organs. For instance:

A woman of 49, with delusion that she smells, and is decaying, and is rotten with syphilis, asks her husband to shoot her, committed suicide at home by hanging, her husband having refused to put her under care.

Another, of 53, complains that her tongue is too big, that her head will burst, that the left side of her head is getting bigger, that her chin and forehead are altering, and her legs also, and that she has "nothing to sit down on."

Another, of 46, feels that the bones and muscles of her neck are broken, that food stops in her throat, groans and howls, and refuses food.

Another, of 50, has no stomach, heart, or lungs, is not a human being, and her body is entirely changed.

Another, of 47, feels clogged up, thinks her abdomen is swollen, "inside feels quite dead," "bowels never act."
Another believed that her sexual organs had changed into those of a dog.

Kraepelin lays stress on the frequency of states of depression in cases occurring for the first time after the age of 50, and believes that a form of depressive disorder exists that he formerly classed with melancholia, and still wishes to separate from manic-depressive insanity. In this condition there is great agitation, tearing the hair, self-picking, biting and scratching, tearing clothes, resistiveness, delusions of damnation or perdition, persecution by evil spirits and inimical powers, hallucinations and suicidal tendency, ending finally in confusion, collapse, and death. He doubts whether this is a clinical entity or "delirium acutum." It occurs most commonly in women in the sixth decade of life.

Maniacal states of various types—pure mania, confusional or delirious—occur with much less frequency in first attack cases at the climacteric than states of depression, but are more common in the not-first attacks, though not so common as states of depression.

Chronic delusional insanity, or paranoia, was found by Goodall and Craig in 9.8 per cent. of the Bethlem Hospital and 14.1 per cent. of Wakefield cases. In my private practice I have found it in 16 out of 101 cases. It is worthy of note that this form of mental disorder only occurred in 1 out of 33 not-first attack cases, but in 15 out of 68 first attacks, or 22 per cent., outnumbering the maniacal cases.

Of the 16 delusional cases 5 were in single women and 12 were of the sexual delusional type, either persecutory or amorous. This large proportion of sexual cases is very noteworthy.

The following examples may be given:

1. A single woman of 45, whose sister was hysterical, and who had had an early love disappointment, began at the climacteric to think that enemies had prevented her marriage, that she was watched while dressing and in the watercloset, that people talked of love affairs immorally, and made cruel remarks about her appearance, sneered and made fun of her.
2. A married woman of 50, with strong insane inheritance, and an alcoholic husband, began to think that her character was aspersed, that the clergyman made indecent gestures and suggestions from the pulpit, that people sneered at her, watched her in the watercloset, and made remarks about her, and annoyed her by flashing lights at her.
3. A married woman of 46, whose father had had "brain fever," began to think she was watched, that the clergy were against her, that scandals were spread about her, that she was "cut dead" by people who nudged one another and made "mocking smiles."
4. A married woman of 46, who developed the delusion that her husband was poisoning her "per vaginam" during intercourse, that he was unfaithful to her, and would kill her, and that her daughter was immoral. This was associated with eroticism, stripping herself naked and demanding sexual intercourse.
5. A single woman of 51 believed she was watched and her food poisoned, that the papers referred to her, that "horrid things" were called out about her, and that she was in a "bad house." She talked of her "cracked admirer," who she thought was waiting outside the house for her.
6. A single woman of 49, who had been operated on for fibroid of the uterus one year before, developed an insane passion for the doctor; wrote passionate letters to him with such terms as, "My darling king"; "Sweetheart, do let us meet"; "Darling, do come; I just adore you." She believed that messages were sent from him in the *Daily Mirror*, and pestered him with most undesirable attentions.
7. A single woman of 51, whose mother and sister were insane, and whose catamenia had ceased, developed a fixed delusion that some one had taken advantage of her and that she would have a child; that sexual wrong had been done to her; that she was pregnant by a cat's afterbirth; and that she had swallowed filth.
8. A married woman of 52, whose father and sister were alcoholic, became deluded that her husband had been married before his marriage to her; that he had a son who was not hers to whom the property would go; that he had been married again fourteen days before to a servant; that women spent the night with him, and that men came to the servant's rooms, and that spies were watching her.

In all the delusional cases the disease remained chronic.

Krafft-Ebing[5] found paranoia with primordial delirium of persecution in 36 out of 60 climacteric cases. In a very small number of cases primary dementia or general paralysis occurred.

When dementia rapidly supervenes the case may be looked upon as an example of pre-senile insanity ending in dementia.

A widow of 56, whose husband had committed suicide eleven years before and whose daughter had become insane, began immediately after the climacteric to think of marriage again, talked of it to a gentleman, and believed that men wanted to marry her. It was found that her memory was failing, that she lost her way, became apraxic, and did not know her address or the date. She became demented.

In many cases of whatever type eroticism or self-abuse was present. In one case the patient and her sister and her maid all became insane, with self-abuse as a prominent symptom. In another, from whom the clitoris had been removed four years before, there were severe orgasms occurring several times a day, with bruising of the thighs and great prostration. She also had drug habits.

It seems desirable to give shortly the details of the cases where operations on the uterus or ovaries had been performed and where insanity subsequently occurred:

1. A married woman of 34; father insane; ovaries removed three years before for tumour; catamenia ceased; subsequently delusional insanity, with jealousy of husband and delusion of his infidelity; ideas of persecution by drugs and electricity; result chronic.
2. A single woman of 47; father eccentric and paralysed; double ovariotomy five years before; catamenia ceased; six months depressed; fear of suicide; train panic; dread of being alone; certified.
3. A married woman of 38; ovariotomy three and a half years before; catamenia ceased; morphine habit since operation, at first due to pain; delusions of poisoning, stealing, and conspiracy by husband and doctors to make her ill; chronic.
4. A married woman of 51; father drug habit, sister neurotic, two sons stammer; vaginal hysterectomy four years before; ovaries not removed; catamenia ceased four years; gradual onset of hypochondriacal depression with invalidism and solitude; delusion that she was a vile woman; had changed to stone; self-accusation of excess in sexual intercourse; refusal of food and suicidal; after improvement for a time relapsed and became chronic.
5. A married woman of 49; three years before excision of uterus and one ovary; catamenia ceased since operation; three years hypochondriacal melancholia; delusion of having cancer, anthrax, uric acid, worms, and microbes; thinks she has the "germ of oxalic acid," and that tetanus and locomotor ataxy are the same; chronic.
6. A single woman of 45, had been the mistress of a married man; uterus and ovaries removed five years ago; catamenia ceased from that time; symptoms of early climacteric from that time not removed by ovarian extract; outburst of acute maniacal excitement with delusions of grandeur, constant motor restlessness and flight of ideas, ending in dementia, with chronic excitement.
7. A married woman of 47; oöphorectomy five years before; catamenia ceased; since operation nervous, sleepless, easily tired, avoids people, suspicious of servants and of theft, "watched," believing herself accused of theft, detectives after her, mysteries and conspiracies going on; chronic delusional insanity.
8. A married woman of 41, whose father was intemperate; two months before admission to Bethlem Hospital oöphorectomy had been performed for depression recurring at each catamenial period; no immediate relief followed; attack of melancholia with self-accusation and suicidal tendency, and feeling as if something had gone from the brain. She recovered after seven months in Bethlem Hospital.

Prognosis.

The prognosis in climacteric insanity depends largely on the nature of the case. Clouston found 57 per cent. of recoveries out of 228 cases. Goodall and Craig found 35.29 per cent. in the cases of which they collected statistics at Bethlem Hospital, recognizing that in many cases the patient only remained under care for twelve months, and that recovery might have occurred subsequently. At Wakefield, however, they found 40.8 per cent. of recoveries. My statistics of cases at Bethlem Hospital, covering a longer period and a larger number of cases, show a percentage of recoveries of 42.3.

In analysing cases seen in private one has to make the reservation that often one cannot learn the subsequent history, as the patient may be seen only once in consultation, but as far as I have the figures, out of 68 first attack cases 26.4 per cent., and out of 33 not-first attack cases 33.3 per cent., recovered.

It might naturally be expected that patients who had had previous attacks from which they had recovered, and whose insanity might be classed in the manic-depressive group, would show a greater tendency to recover again than those breaking down for the first time at the climacteric, and of my first attack cases of melancholia at least one-third became chronic, but only one-sixth of

the not-first attack cases. The cases of hypochondriacal and of agitated melancholia are very unfavourable to recovery. Two of my first attack cases of melancholia died, but none of the not-first attack cases.

All the cases of delusional insanity became chronic.

Speaking from a small number of cases whose insanity occurred subsequently to operation, as recorded above, the prognosis as to recovery seems to be very unfavourable.

Kraepelin[6] remarks that it is doubtful whether involution (Rückbildung) of the ovaries and cessation of internal secretion is the most important or, indeed, the only cause of disturbances at the climacteric, yet the loss of the generative glands cannot be unimportant for mental balance. He also refers to the disappointed hopes that removal of the ovaries would cure psychical disturbance.

One important question in prognosis is as to the effect of the climacteric on pre-existing insanity. I do not refer here to the fact noted above—namely, that a patient who has been liable to attacks of insanity may break down again at the climacteric, but to the hope always expressed by the relatives of patients who have for a long time been insane that "at the change" there will be an amelioration of symptoms. In my opinion this hope is a false one, and I do not remember to have seen a patient recover at the climacteric whose insanity had been long pre-existing. Patients suffering from melancholia may, of course, recover after many years, but apart from the climacteric.

Treatment.

The treatment of the psychoses of the climacteric is practically the same as that of psychoses occurring from other causes—attention to sleep, digestion, bowels, feeding, and asylum care if the symptoms necessitate it. As the majority of the cases are of the affective or melancholic type the possibility of suicidal tendency should always be borne in mind and skilled supervision should be provided. In most cases the disorder so alters the relationships of home life that if an asylum is not necessary, at least borderland care is. The administration of ovarian extract has been recommended, and one of the operation cases I have recorded had been treated in this way for some time, but insanity subsequently occurred. Kraepelin remarks that he has unfortunately found no good result from it.

Transplantation of ovarian tissue has been resorted to in some cases after oöphorectomy, with a view to lessen the symptoms of early menopause, and was recommended by Dr. H. S. Davidson in a paper read before the Edinburgh Obstetrical Society on March 13th, 1912, and also by Engel in an address before the Berlin Medical Society.[7] It would be interesting to hear the opinion of gynaecologists present as to its value.

With regard to psycho-analysis, there is no doubt that in some of the cases a careful investigation of the history has revealed a suppressed "complex" dating from many years before which has played a part in the patient's mental disorder. One interesting case of this nature occurred in a single woman who recently came under my care. An intimate female friend broke down mentally, self-abuse being a prominent symptom. My patient then developed mental depression with self-accusation and suicidal tendency. She believed herself to be responsible for her friend's illness, and eventually revealed that many years before there had been sexual irregularity between them, and this "skeleton in the cupboard" had now risen up and assumed an exaggerated importance. In my experience, however, attempts at explanation of the patient's symptoms on the purely psychical basis have not obviated the necessity of adopting the other well-recognized methods of treatment which experience has shown to be valuable for the cure of insanity whether arising at the climacteric or any other period of life.

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II.—Charles J. Macalister, M.D., F.R.C.P.,

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In the short time at my disposal it will only be possible to make a sketchy and perhaps somewhat hypothetical survey of the pathology and treatment of the psychoses and neuroses of the climacteric in their relationship to general medicine, and I propose to deal with some general principles rather than enter into any details concerning the numerous morbid conditions which are ascribable to this period.

The climacteric referred to is only one of a number which occur in the lives of every human being whether male or female, and it is interesting to note that the phenomena which characterize each and all of them have certain similarities so far as their effects upon the nervous system are concerned.

A person who lives to be aged completes a long cycle within which are numerous others. The cardiac and respiratory functions each represent cycles which are completed within seconds of time. Periodicity marks the healthy diurnal performances of the functions of the alimentary system, and the phenomena of sleeping and waking are other examples of the same kind of thing. Menstruation and ovulation are distinctly cyclical, and there are reasons for believing that there are annual, or at all events seasonal, cyclical periods during which we may infer that some metabolic changes take place if we may judge by the way in which gouty and kindred disorders prevail in the spring and autumn. Lastly, there are the larger cycles which mark the milestones of life—the first lasting from the very moment when the ovum begins to grow until birth. Then comes the period of infancy and its transition to that of childhood. Thence the passage through the phase of puberty to adolescence, from adolescence to maturity, and finally the menopastic period and its male equivalent which mark the end of life's greater activity and the commencement of the final stage of senescence. The familiar expression, "Wheels within wheels," so often made use of when complicated and incomprehensible problems are being discussed, literally expresses these facts concerning life and the difficulties connected with the solution of their explanation. Shakespeare roughly indicated the characteristics of the parts played by the individual in his oft quoted "seven ages" of life, but it would require a biologist of no mean poetical imagination to put into words a description of the bodily changes which take place at the various transition periods to which I have made reference.

It seems to be doubtful whether the climacteric here referred to is ever normally symptomless so far as the nervous system is concerned; indeed, it would be rather wonderful if it were so when we consider the essential physiological changes which take place. This transition period, which probably lasts for years, and of which, in the female, the menopause is only an item, is associated with alterations in function and secretion, and changes in bodily chemistry and structure which include the nervous system, not only directly and perhaps locally, but also in a general way through the altered metabolic conditions which take place. My impression concerning the psychoses and neuroses of this time of life is that they depend in the main upon morbid conditions connected with this changing metabolism involving a faulty bodily chemistry, which either produces toxic effects upon the nervous system or by disproportion of essential elements (for example, over-production of some secretion on the one hand or its under-production or perversion on the other) leads to some inco-ordination of function and consequent disease. Although there is no real analogy between the two cases, one is reminded of the nervous distress which is brought about by the physical inco-ordination of organs which are accustomed to act in concert and harmony; for instance, in the case of an ocular paralysis causing double vision, giddiness and vomiting are often excited owing to the reception of impressions by the retinae in unaccustomed axes. Again, changes in the ear and semicircular canals and other organs of equilibration similarly give rise to distressing neuroses which are not due to any structural changes in the nervous system itself. It is quite unnecessary for any diseased condition to be present in order to produce such disturbances. It is quite sufficient to have two senses which commonly act in accord thrown out of their usual relationships to one another. Somebody (I think it was Trousseau) ascribed the symptoms arising from such conditions to what he termed "cerebral surprise," due to the reception of stimuli accustomed to be received in association

having their relationships dislocated, so to speak. An example of this is experienced in the giddiness which some people suffer from when they stand on the edge of a precipice. The visual centres, being accustomed to having solid ground around them, become upset by the fact that the muscular sense tells the brain that solid ground is being stood upon, whereas the visual sense conveys the impression that a vast space is beneath the feet. The visual and muscular senses are thus out of co-ordination, and giddiness and nausea are consequential symptoms.

One might quote numerous other examples of the same kind of thing, but it is unnecessary, my purpose being served if I suggest that the chemical inco-ordinations which are so apt to occur at the climacteric periods may in the same way, by causing faulty stimulation, lead to the production of neuroses and psychoses of various kinds without necessary structural changes in the nervous system being present.

In order to illustrate my meaning, I shall take you back for a few moments to the climacteric of puberty, because it presents symptoms which contrast with those of the later one, and a lesson may possibly be derived from their study. If a child is carefully observed who is passing through this period, it will often be noted that, in addition to the marked psychic changes—which need not be recited, they are so well known—a distinct constitutional change occurs: the ruddy cheeks and robust habit of body and the warmth and activity of the child give place to a tendency to blueness; the face and extremities look cyanosed and the latter are cold; apathy and syncopal attacks are common accompaniments. Vascular spasm is characteristic. All of these symptoms disappear, more or less, when menstruation is established, but sometimes they remain or recur, and the persistence of pathological Raynaud-like symptoms, I believe, accounts for some of the peculiar dyspepsias of young women.

As I pointed out in a paper read some years ago,[1] it is possible that the perforating ulcer, so common in young womanhood, and so frequently preceded and accompanied by these Raynaud-like phenomena, including amenorrhoea, depends upon vascular spasm of the wedge-like capillary tufts arising from the coronary arteries.

It is significant that the administration of thyroid may relieve the amenorrhoea and other symptoms by co-ordinating, as I think, with some other secretion. The symptoms are like those produced by overdosage with ergot, and I am informed by my friend Dr. Titherley that ergot is a hormone-like body similar to phenylethylamine and para-hydroxyphenylethylamine, which are derived by elimination of CO_2 from certain amino acids present in protein. They are degradation products of some protein bodies, and are sometimes known as animal ergot. It is a question whether adrenalin is one of these. Anyhow, the symptoms and effects which I refer to are such as might be due to such a body, and one does not know whether its influence may be exerted directly upon the vasomotor system or whether it produces its effects by acting upon and regulating one of the thyroid functions, which are probably added to at this period of life.

In this connexion we must not forget that there are anatomical and physiological reasons for suggesting the chemical natures of the various climacteric changes. During fetal life the adrenal cortex is of very large size; at birth it may be nearly as large as the kidney (Keith), and in young children it is much larger in proportion than it is in adults. Then comes the thymus, which fades and becomes vestigial with the termination of childhood. The thyroid manifestly has important secretive duties during this period, but at puberty it in turn enlarges and evidently adds to its functions, especially in the girl, and it probably works in collaboration with the adrenal or with the pituitary or other secretions. Normal sexual characteristics seem to depend upon the co-ordinative secretion of these glands, and it is reasonable to believe that many of the psychoses and neuroses of the climacterics depend upon their inco-ordination—temporary it may be, until the glandular developmental balance is established.

Is there any clinical or pathological proof of this? I believe so. I have not had opportunities of making *post-mortem* examinations, which are very conclusive, but my clinical experience, added to the experiences of others, goes to suggest it. Two cases in point have recently presented themselves.

The first was an adolescent girl who since puberty had developed a degree of melancholia with delusions of fear. She had the usual cold extremities, slow breathing, and general apathy so common in these cases. Menstruation was not in abeyance, but she was always worse at these times, and had on one occasion threatened suicide. From what I could gather, there were erotic propensities. What at once struck one concerning her was the large growth of downy facial hair on the sides of her face and on her lip and chin, and on examining the abdomen there was a marked male distribution of the pubic hair. Professor Ernest Glynn, in his exhaustive paper on the Adrenal Cortex, its Rests and Tumours, has referred to this condition being associated with hyperplasia of the adrenal cortex, a condition which in the female is associated with male characteristics and in the male with more maleness.

The other case was one of a young man who presented female attributes and female distribution of the pubic hair. He had one small testis, the other undescended. He also had some other indications of metabolic abnormality, including gastralgia and vascular spasm, in fact the prodromata which so frequently antecede gastric ulcer in the young woman.

In reviewing the neuroses and psychoses of the later climacteric, and on considering its known physiology it seems reasonable to infer that they depend in the main upon inco-ordination of secretive function, now no longer dependent upon a want of balance in the establishment of glandular secretion, but rather due to its gradual and perhaps unequal decadence. Some want of equality in the process no doubt accounts for the vascular disturbances—flushings and heats and tachycardia and a host of other well-known symptoms—and for the loss of tone, too, in the nervous system, both visceral and parietal, which are so apt to occur and account for the common mental upsets which accompany them. What wonder is there that greater variations give rise to pathological mental disturbances of greater or less intensity, extending from the realms of hypochondria to those of actual insanity? Just as the onset of menstruation at puberty is but a factor in a complex process, so the menopause is, as I have frequently said, only an item in the menopastic climacteric, and we have proof of this in the fact that males present indications of a change just as females do.

Sir Henry Halford was the first to refer to this, and his classic description of the symptoms is quoted by nearly every writer on the subject. They include indefinite feelings of ill health, periodic darting pains in the head and chest, disorders of digestion, weakness, loss of flesh and mental strength, and, importantly, insomnia. In addition to this he describes a quicker circulation, sensations of numbness and burning of the palms and soles, gloomy and desponding thoughts amounting to impressions of poverty, and so forth. There is irritability of temper, and withal an aged appearance. Some or all of these symptoms may exist from four or five months to two years before the balance is restored and complete recovery usually accomplished.

Surely these transitions from the normal to the abnormal are metabolic or chemical in origin, and the future treatment of them will consist of a kind of biochemical orthopaedics (the term was suggested to me by Dr. Jansen of Leiden in the course of a conversation) to restore chemical co-ordination by means of the administration of hormones or internal secretions or other bodies yet unknown which may be suggested by future experiment as a means to an end.

I regret very much that in the quarter of an hour which is the limit of time permitted one cannot elaborate a subject so full of interest. One realizes that "in Nature's infinite book of secrecy" we are still seeking for knowledge concerning these obscure problems, and we must look for further enlightenment, not from the single endeavours of the clinician or of the biochemist or pathologist, but from their co-operative work and usefulness to one another.

REFERENCE.

[1] Some Thoughts and Suggestions Concerning Gastric Ulcer, *Liverpool Medico-Chirurgical Journal*, 1905.

III.—T. B. GRIMSDALE.

THE climacteric, or menopause, is the time of life when menstruation ceases, and it is supposed that at the same

time the ovaries cease to functionate. It is unnecessary to discuss the relations between menstruation and ovulation further than to say that there is no doubt that they are intimately connected, and that they do in all probability synchronize more or less as a general rule. When the climacteric is established the production of ova by the ovary ceases.

There is, however, a second function of the ovary besides the production of ova which exercises a profound influence on the general economy of the body, and this function also ceases at the menopause. This function is similar to that of the other ductless glands, and it is supposed that there is some internal secretion from the ovary that is responsible for the general development of the sexual characteristics of the female and for her general well-being. Marshall says:

> In the human female double ovariotomy, if carried out before puberty, besides preventing the onset of puberty and the occurrence of menstruation, produces noticeable effects on the general form and appearance, as may be seen in adult women in semi-barbarous parts of Asia, where the natives perform this operation upon young girls. Such women are said to be devoid of many characteristics of their sex, and in certain cases to present resemblances to men.

It is well known that if both ovaries are completely removed from a woman during her sexually active life she will cease to menstruate, and she will pass through what is known as an acute menopause. If a small portion of an ovary is left behind at the time of operation, it is sufficient to avert or greatly modify the symptoms. These symptoms consist of a general nervous irritability, often despondency, flushes of heat, perspirations, and often palpitation.

The acuteness of the symptoms varies with the age of the patient, and as a rule they continue for eighteen months or two years. In one case in which I had to remove the ovaries for salpingo-oöphoritis in a woman aged 36 the symptoms were terribly severe. She was nervous, rather tremulous, had some palpitation, and she had waves of heat passing over her body and face, attended by intense flushing of the face, and followed by such profuse perspirations that she was obliged to change her clothing; this occurred several times a day, and was most persistent in spite of treatment; it continued for more than seven years. Curiously enough, her thyroid seemed to diminish in size, and in the end her symptoms were improved by thyroid extract.

In these cases of artificial menopause the symptoms are often relieved by the administration of ovarian extract, and I believe to a much greater extent by the transplantation of ovaries, although of this I have no personal experience. A remarkable case is related by Andrews, where Glass transplanted a healthy ovary from a girl of 17 to a patient, aged 29, whose ovaries had been removed two years before. The ovary was sutured in the normal situation. The patient had been much troubled by menopause symptoms. Six days after the transplantation of the ovary she had erotic dreams; sixteen days later she had uterine haemorrhage for two days; six months later another uterine bleeding, lasting three days. Eight months after the operation she was perfectly well. This all goes to support the presumption that there is an internal secretion of the ovary.

The internal secretion of the ovary is supposed to be formed in the follicle and in excess as the follicle is becoming ripe, which suggests an explanation of the nervous symptoms at each menstrual epoch.

According to Fraenkel the corpus luteum of pregnancy is to be looked upon as a ductless gland and it has been suggested that it may be that the ovary secretes two distinct internal secretions, one which has its effect on the nutrition of the embryo and its surroundings and another which has a more general effect on the nutrition and general changes in the body.

There is evidently a very close inter-relationship between the various ductless glands themselves, and their connexion with the sexual organs is definitely established in the adrenal cortex and pituitary hypophysis, as also in the thymus.

The connexion between the sexual organs and the thyroid was well known to the ancients, and they recognized that in pregnancy the thyroid gland became enlarged.

Catullus in the *Epithalamium* says:

> Non illam nutrix oriente revisens
> Hesterno poterit collum circumdare filo.

Of this I will give you the following rendering by Professor Strong:

> Never again her nurse at break of day,
> Performing service at her mistress' beck,
> Will twine the yestreen ribbon round her neck,
> That neck has grown in size since yesterday.

A relation between the ovaries and the thyroid gland is shown in a very striking manner in the case which I now relate. A woman, aged 32, suffering from goître with exophthalmos and marked symptoms of thyroidism, tremors, great excitement, very rapid pulse, etc., was in the Royal Infirmary under the care of Dr. Buchanan. She complained much of pain in the lower abdomen, caused by pelvic inflammation. At his urgent request, and with considerable misgiving, I opened the abdomen and removed with some difficulty both tubes which were full of pus and both ovaries.

The patient made an easy recovery from the operation, but, to our surprise, the goitre and the exophthalmos entirely disappeared, together with the symptoms.

The explanation I do not propose to attempt, but merely say that it suggests some intimate relationship between these two glands.

Noel Paton in the *Journal of Physiology*, 1904, has shown the effect the thymus has on the growth of the testes, and Henderson has shown the effect of the testes on the thymus. The presence of each gland has a restraining influence on the growth of the other. In the guinea-pig, if the thymus is removed, the testes grow, and average considerably more in weight than the testes in normal animals of equal weight. Paton was unable to try the similar experiment in the female, as the guinea-pig's ovary was so small that it was "not practicable to compare its weight in thymusless and normal animals." Similarly Henderson showed that the removal of the testes causes a persistent growth and a retarded atrophy of the thymus gland.

Glynn, in the *Quarterly Journal of Medicine*, 1912, calls attention to the enlargement of the adrenal cortex during breeding, pregnancy, and after castration, and to the small size in deficient sexual development, as additional evidence of the association of the cortex with sex characters. He further says the functional association of the adrenal with the pituitary and other ductless glands, and the appearance of certain sex abnormalities in acromegaly and pineal tumours, indicate that a true solution of the connexion between the adrenal cortex and sex will only be found when the interrelationships of the various ductless glands are better understood.

The balance between the various ductless glands is evidently most mysterious and complicated, and when one gland of the group is suddenly thrown out of action, as happens with the ovary at the menopause, it is hardly surprising if that balance is disturbed. It is during the time of the readjustment of the balance that symptoms occur. There is increased excitability, muscular tremor, palpitation, flushings, and perspirations.

One can hardly fail to be impressed with the striking resemblance these climacteric symptoms bear to those of hyperthyroidism. It may be that the ovary and the thyroid have some sort of relationship similar to that between the testes and the thymus, and that when the ovary ceases to act the thyroid influence is increased.

The neuroses and psychoses of the climacteric which present themselves to the gynaecologist are not very numerous.

I should say that most women pass through the menopause without any complaint sufficient to make them consult a doctor; it is only in the neurotic that severe discomfort is experienced.

The commonest manifestations are the flushings and sweatings, which come on at irregular intervals, and generally attack the face and head. With these are frequently associated tingling in the arms and hands.

Pruritus vulvae is also rather common, although this is frequently not a pure neurosis. In many cases palpitation is complained of where no cardiac lesion can be detected. Paroxysms of palpitation occur without discoverable cause. They may arise when the patient is in any position, or even during sleep.

Flatulent distension is also a common complaint, and this, combined with the amenorrhoea, may lead to the suspicion of pregnancy.

This peculiar condition, known as "pseudocyesis," occurs every now and then at the climacteric, although it is not altogether limited to that age; the condition occurs with equal frequency in women who have and who have not borne children.

When the patient presents herself, it is usually late in the supposed pregnancy; there will then be great abdominal enlargement, and she will always complain much of the fetal movements.

I do not intend to say anything more about the psychoses beyond mentioning headache, depression, loss of memory, and some confusion of thought as being of common occurrence at the c imacteric.

As regards prognosis and treatment, true menopausal symptoms will clear up when the climacteric is over—that is, in eighteen months to two years—but many symptoms which come on at the climacteric and aggravate that period are really not peculiar to and dependent upon the menopause. These manifestations it is difficult to disentangle and apportion to their proper place. It has been rather the custom to class all the ills that happen to a woman at the climateric as due to the menopause changes. It has been my endeavour to try to limit the symptoms as much as possible to those dependent upon the change. Concerning treatment I need say nothing—I have no panacea. All we can do is to alleviate.

I am reminded of the words of Kipling:

> There are sixty different ways
> Of composing native lays,
> And every single one of them is right.

DISCUSSION.

The PRESIDENT said there were probably no organs of the human body regarding whose functions more theories could be held than the ductless glands, and he agreed with Tandler that in each sexual organ there were two parts, a generative part and one devoted to internal secretion, the nature of the last in the case of the ovaries being unknown, no specific substance having been isolated. He supported the view that all the ductless glands played an important part in the symptoms of the menopause, and that all had some relation to sex. When the climacteric occurred it might be safely passed if the ductless glands, apart from the ovaries, were functionally active, but if one of them was affected, the balance was not readily restored, and a neurosis or psychosis resulted. The condition was a toxaemia, and the result of some disturbance in the wilderness of metabolism.

Speaking of insanity following removal of the ovaries, he said he had notes of six cases in which after oöphorectomy had been performed insanity followed, and he believed that the psychosis occurring then was of an unfavourable type, more so than that occurring after a normal menopause. It was characterized by a deterioration of the moral fibre of the person and by excitement with delusions, often of the most unpleasant character. Cases of post-operative insanity were more unfavourable as regards recovery than their symptoms and history would lead one to expect, and with this the nature of the anaesthetic used might have something to do—chloroform, it was said, being more frequently followed by post-operative psychoses than ether. In any case the insanity which occasionally followed the surgical menopause was of unfavourable prognosis.

He held that there had been no increase during the last twenty-five years in the frequency of certifiable insanity occurring at the climacteric period, but he had recently seen a large number of minor psychoses and neuroses occurring at this period in patients presenting themselves for treatment at the department for nervous and mental diseases at a general hospital. He considered that brains robust enough to withstand the stress occurring at puberty and adolescence were likewise able to pass successfully through the changes initiating the period of decay, but he pointed out that in the climacteric psychoses the percentage of those who had had a previous attack of mental illness was large. There was considerable evidence in favour of the belief that the ductless glands exercised an influence in the production of symptoms hitherto believed to be peculiar to the reproductive organs. Glynn believed that the adrenal cortex was concerned with the growth of sex characters, and others that it generated a hormone which had a special influence on the reproductive organs. Some years ago he examined a large number of adrenals from cases of insanity, and in several in whom there had been symptoms of sexual disturbance he found the cortex enlarged. Goître had developed after the removal of both ovaries. He quoted the opinion of Schenk that the adrenals, ovaries, and testicles have a definite relation to each other, but thought that while there was such a relationship much further work would require to be done before accurate conclusions could be arrived at.

The climacteric psychoses were more frequent among the private class of the insane than among the pauper; in his experience, in the proportion of 38 out of 500 admissions in the former, and 30 out of 500 admissions in the latter. Those figures were lower than quoted by others, but it was his custom to label such cases only as climacteric as were uncomplicated with other exciting agencies, and where it could justifiably be assumed that the insanity was the immediate outcome of the change of life. He gave details of two unusual cases at present under his care, and considered, while there was no form of insanity peculiar to the climacteric period, that conditions of depression were most commonly met with. He had seen dementia supervene at the climacteric period in two cases without previous acute mental disease. He spoke of the frequency with which conditions of religious despondency were met with, and contrasted those with the converse state of religious exaltation so frequently associated with the sexual transformation and excitation of adolescence and of hysterical and epileptic forms of insanity, as pointed out by Lewis. Uncomplicated cases of climacteric insanity were of favourable prognosis, very favourable in his opinion, as contrasted with the prognosis of all cases of insanity in women when taken collectively. Recovery was more likely to be permanent the more nearly the psychosis realized the character of a true insanity dependent on the period of life. He thought psychologists took too grave a view of these psychoses, probably because they saw only the worst types. The minor psychoses and neuroses occurring at this period—of which he gave illustrations—were almost always recovered from, and in them, as in others, the time element was an important factor in treatment. Even in the mildest types there was some depression, many ill-defined nervous symptoms, neuralgias of various kinds, unstable emotional states, and changes in the affections.

As regards the climacteric in men, he had not frequently met with cases dependent largely or entirely on that condition. The reproductive function played a smaller part in a man's life, and he agreed with Barnes that there was nothing to compare with the almost sudden decay of the organ of reproduction which marked the middle age of woman. The grand climacteric in man was later than in woman. It varied more in the individual, was not accompanied by such definite symptoms, and marked more the beginning of the period of senile decay than the period of cessation of the reproductive functions.

His treatment of the developed psychoses was largely one of symptoms, and he had had no success in the use of ovarian or other organic extracts. In the treatment of the milder psychoses, he considered that great benefit resulted from removing the patient from the daily round of household duties and from her familiar surroundings. The patient's general condition was usually unsatisfactory, and holding the views he did of the causation of the condition, it was naturally his practice to keep the excretory organs of the body in full activity, and, having rectified any physiological error, to wait patiently for the re-establishment of harmonious co-operation of the organs to the altered conditions of middle age.

Dr. W. MAULE SMITH (Bromsgrove) said: I thought it might be of interest to examine the associated factors in cases of insanity occurring in female cases between the ages of 40 and 50. The number of direct admissions of such is 97; the largest number (19) were cases of recent melancholia, which, together with the recurrent and chronic cases, form a third of the total. The manias, manic-depressive cases, delusional insanity, amentia, and

second dementia are nearly equal in number, whilst a few cases of imbecility, epileptic insanity, and general paralysis make up the number.

Causes.—Under hereditary predisposition, mental and physical stress, the various causative factors have been grouped, and the menstrual history has been ascertained in the majority of the cases. What strikes one at once is the great frequency with which menstruation is apparently quite natural, or has shown alteration long before or long after the onset of the mental illness. It is therefore difficult to satisfy oneself that this has any important causal effect in precipitating the attack of insanity. In a small percentage of cases the symptoms appear to be more closely related to menstrual cessation or abnormality, and might reasonably be said to follow on directly. This, however, is the exception. On the other hand, there is usually a clear history of physical stress of one kind or another, and frequently also unusual mental stress from which the mental illness dates. In many cases there is a hereditary predisposition. Careful inquiry sometimes elicits the fact that there has been a history of mental alteration long before the onset of the climacterium; then some unusual mental or physical stress has occurred to precipitate the attack.

In the group of *recent melancholias* the attack always appears to have definite causal factors, and menstruation is natural. I think it is an important point to note that in one case there was amenorrhoea four months prior to admission; this continued during the acute attack. The patient is now recovering, but she suffers from obstinate menorrhagia. She has had a number of relapses, which were definitely due to constipation, and disappeared when this was corrected.

Chronic and Recurrent Melancholia.—In one case of chronic melancholia, who is now becoming demented, there is a history of recent menorrhagia, apparently closely associated with the onset of the mental symptoms. The menorrhagia continues and dementia is supervening. The patient shows marked congenital mental defect and valvular heart disease. In the recurrent form there are two cases in whom the mental symptoms might be said to be associated with menstrual derangement. It follows, then, that in all kinds of melancholia there are three cases out of thirty-three in whom the change of life may be said to be associated with the onset of the mental attack.

Recent, Chronic, and Recurrent Mania.—In the series of 12 cases classified under these headings, no satisfactory relationship between the climacterium and the onset of the mental symptoms could be ascertained. In one patient suffering from recent mania, menstruation was irregular and painful, but there was a history of prolonged mental stress and ill-health. In another (recurrent form) the age on first attack was 41, but there is a strong hereditary predisposition to neurosis, insanity and alcoholism, and the patient herself suffers from goitre and valvular heart disease. In the manias, therefore, the climacterium need not be regarded as a determining factor.

Manic-depressive Insanity.—In this form of illness there is a more frequent history of menstrual irregularity than in other forms, but as a rule the onset of the symptoms have been noted by the relatives prior to the menstrual disturbance, and it is very difficult to satisfy oneself that there is a definite relationship between cause and effect.

Delusional Insanity.—The same difficulty presents itself with regard to this form of insanity. The onset of the mental symptoms is usually not associated with the stoppage or irregularity of menstruation. In one case of hysterectomy the mental disturbance followed immediately upon the operation. In three other cases there is a history of menstrual disturbance, but in one of these the present is the second attack, and there is a distinct history of prolonged mental stress, a family history of direct epilepsy, and the patient herself is neurotic. It is possible that in Case 2 the climacteric onset may have been a determining factor, but there is a history of long-standing slow alteration of the mental state.

Amentia.—Eight of this series of 12 cases were suffering from acute bodily illness on admission, and died shortly afterwards. With regard to the others: (1) Menstruation had stopped four years prior to admission; (2) menstruation is natural; the patient suffers from large goitre; (3) alteration of disposition followed severe operation three years go; (4) menstruation ceased, (?) history defective.

Dementia, Secondary.—In this series of 12 cases, with the exception of one, the mental breakdown follows alcoholism, head injury, cerebral softening, or other factors. In one case the alcoholism is recent, and there is a history of late menstrual irregularity which might be primary.

General paralysis, insanity with epilepsy, and imbecility comprise the remaining 10 cases, and I do not consider that the change of life has anything whatever to do with the onset of the symptoms peculiar to these conditions.

Out of the 97 cases it follows that in only 6 cases has a history of definite onset of mental symptoms followed menstrual derangement associated with the climacterium. The number of cases is very small on which to base general conclusions, but they indicate that with the exception of recent melancholia there is little to indicate that the change of life is associated with any particular kind of mental derangement more than another. Further, that something like more than 90 per cent. of cases of insanity occurring at this time are due to factors already known or still unknown, but not dependent on climacteric changes. In the remaining 6 or 7 per cent. mental derangement may follow menstrual change as the result of this natural process having *per se* gone wrong.

Treatment.—In common with the experience of others, I have noticed no amelioration of symptoms following the use of ovarian or other gland tissue under ordinary circumstances, but in the case of delusional insanity following hysterectomy distinct benefit followed the use of ovarian tabloids up to a certain point. But the symptoms having shown a tendency to recur, a liquid extract of sheep or cow's mammary gland has been found to check the symptoms.

Dr. Greenlees (London) asked whether, in the experience of the introducer of this discussion, operative interference in cases of the insanity of the climacteric period, was beneficial, and quoted a case in his practice in which it was intended to perform ovariotomy in an otherwise incurable case, but at the operation adhesions were so extensive that the surgeon decided not to proceed further.

Dr. Alexander (Liverpool) had never known insanity follow removal of both ovaries, except in women already neurotic. He did not believe removal of ovaries tended to cause insanity, and thought, therefore, that the internal secretion played only a small rôle in the production of the climacteric insanities.

Dr. David Blair (Lancaster) referred to the absence of pathological appearances in the uterus and ovaries in cases of climacteric insanity where there were well-marked delusions of pregnancy. He referred to a case where one suprarenal was greatly degenerated.

Dr. Devine (Wakefield) referred to the work of Dreyfus, who included all the climacteric insanities in the manic-depressive group. Dr. Devine did not entirely agree with this; he thought the climacteric formed one of the most distinctive types, offering a very beautiful biological study, and illustrating the influence which a particular epoch exerts on the content of the psychoses occurring at this period.

Dr. Purves Stewart (London) desired to speak of the neuroses and psychoses of the climacteric from the point of view of the neurologist—that is, from a point intermediate between that of the alienist and that of the gynaecologist. Restricting his remarks to the nervous affections commencing at the climacteric, and carefully excluding those not uncommon cases in which the menopause merely produced an exacerbation or a fresh attack of a pre-existent nervous or mental malady, Dr. Purves Stewart found that cases of climacteric neuroses and psychoses were nevertheless very numerous, probably more numerous than Dr. Percy Smith's statistics showed. But the vast majority were of the mild or minor type, a class of case that was more likely to come to the physician or to the general practitioner than to enter the august portals of the alienist.

Several groups of minor climacteric neuroses might be

mentioned. Of these the commonest were associated with the cardio-vascular system—for example, paroxysmal tachycardia, sudden sensations of flushing, or coldness in the head, trunk, or limbs. These sensations might be associated with visible redness or pallor of the skin. One particular form of paroxysmal cutaneous erythema was specially common at the climacteric. It consisted in a patch of redness of the neck, shoulders, and upper part of the chest, limited above by a line corresponding to the area innervated by the trigeminal nerve, the upper border of the erythema thus including the angles of the jaws and running along towards the chin just above the lower border of the mandible. Paroxysmal sweating was also common. Attacks of vertigo, with or without tinnitus, but as a rule unaccompanied by deafness, were probably due to transient changes in the circulation of the labyrinth. Variations of cerebral circulation possibly accounted for the headaches and other forms of cephalic discomfort, and possibly also for part at least of the mental anergia, the emotional instability, and the irritability of temper, of which the climacteric woman (and her non-climacteric friends and family) complained so bitterly. Phobiae and obsessions of various sorts were also particularly common in climacteric women.

He had made a considerable number of observations on the blood pressure in patients at the menopause, and although the results were far from constant, on the whole he thought that the majority of climacteric cases had a subnormal systolic pressure.

The major neuroses, on the other hand, in his experience, were relatively less frequent at the menopause. An important exception to this statement, however, was in the case of the artificial menopause following oöphorectomy during full sexual vitality. He had seen a number of cases of severe hysterical tremors, functional paraplegia, profound psychical changes, etc., without actual insanity, in young women from whom the ovaries had been removed for ovarian or uterine disease. At the physiological menopause, on the other hand, grave hysterical phenomena were relatively uncommon, with one exception—that of pseudocyesis or false pregnancy, which was specially common at the time of the climacteric, and might be met with in stolid, level-headed women without other apparent nervous stigmata. When he was an undergraduate, his first case in obstetric practice was one of this sort. He well remembered sitting up for many anxious nights with an apparently experienced multiparous patient who believed herself to be on the verge of labour. After several fruitless weeks he went for a holiday, and on his return found that, despite the combined efforts of the patient and of various obstetric fellow-students, the case had turned out to be one of false pregnancy after all.

As regards the treatment of the climacteric neuroses and psychoses, he thought that a good deal could often be done to alleviate the patient's symptoms. Change of scene, removal from domestic worries, and careful attention to all the bodily functions were all important. For the minor cardio-vascular symptoms and the various subjective feelings of discomfort, he was in the habit of prescribing ammonium bromide, valerian, and aromatic spirits of ammonia, and frequently with highly satisfactory results.

In his experience ovarian extract was of comparatively little therapeutic value, except in the artificial menopause. Why this difference as compared with the neuroses following the ordinary menopause? He suggested that, inasmuch as the climacteric was as much a physiological event as was puberty, any attempt to add ovarian secretion to the organism at the normal climacteric was essentially unphysiological. Instead of juggling with a secretion which normally should be diminishing at the menopause, they should try to help the patient to develop the activity of the other internally-secreting glands, so as to attain a new physiological equilibrium, an equilibrium which was as different from the pre-climacteric equilibrium as this latter condition was different again from the condition prior to puberty. Thyroid extract, pituitary extract, adrenal extract, etc., were all worthy of trial in suitable cases. In addition, encouraging suggestions and kindly reassurance of the patient were invaluable during the menopause, until she attained the condition of post-climacteric equilibrium.

Dr. PERCY SMITH, in reply, said he was glad to hear that Dr. Grimsdale believed that transplantation of ovarian tissue would relieve the symptoms of artificial menopause, and agreed with him that most women passed through the menopause without nervous symptoms unless they were neurotic. He was glad to find that Dr. Oswald's statistics as to cases agreed closely with his own. He had also met many cases of "borderland" psychoses at the climacteric in his out-patient department at St. Thomas's Hospital. Dr. Maule Smith's cases were cases between 40 and 50 years of age, and not therefore necessarily cases of climacteric insanity. With regard to Dr. Greenlees's question, he did not think operation should be done in any case unless there were definite signs of ovarian or uterine disease, and agreed with Dr. Alexander that it was commonly where there had been neuroses before that the patient broke down after the operation. With regard to Dr. Devine's remark, Kraepelin had adopted Dreyfus's criticism.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

THE CONTAGIOUSNESS OF LEPROSY.

ALL authorities on leprosy will agree with Dr. Lindsay Sandes that the disease is contagious. The vexed question is, How does the contagion take place? Some abrasion of the skin or mucous membrane would appear to be necessary. Black, a former assistant medical officer on Robben Island, noted some years ago that the disease often manifested itself first in the nose, beginning with a small abrasion or ulcer of the mucous membrane. Stickler,[1] out of 153 cases examined, found that 128 showed ulceration in the nasal cavity. The habit, common enough at home, and more so in hot climates, of picking the nose with the finger-nail, would account for the primary ulceration or abrasion. Thin[2] discusses the question of contagion at some length. The disease does not appear to be contagious in the same way as measles, small-pox, and other diseases are. Impey and Hansen[3] also seem to think that some abrasion is necessary. Ross, after a search of the careful records kept on Robben Island for forty-five years, discovered one case of contagion; in this case we have a distinct history of a wound. The boy pricked himself with a fish-hook whilst with the lepers. One well-known case seems at first sight to go against the theory that an abrasion is necessary, the case recorded by Dr. Hawtrey Benson in 1877. I am not aware that it has been recorded whether the Irishman who contracted leprosy after wearing his leper brother's clothes was free from abrasions and scratches; probably he was not. I do not agree with your correspondent of April 20th, or with Dr. Lindsay Sandes, that to contract leprosy after seven years' service amongst lepers is more an unfortunate than an inevitable result. Probably due to carelessness, working or operating, while there was a scratch or cut on some exposed part. Many of the medical officers and the majority of the leper attendants on Robben Island have had longer service than this, and no cases have been recorded. Mosquitos appear to be incapable of spreading the disease. Arning[4] describes his experiences in the Hawaiian Islands, and his experiments prove that mosquitos do not convey the disease.

It is difficult, indeed almost impossible, to get a reliable history from a coloured patient; they almost always trace the beginning of their disease to a cold, and invariably inform us that their friends and relatives are quite healthy. In the white races it is easy to get a reliable history, once one has gained the leper's confidence. I have amongst my notes an accurate history of several cases, all of which favour the hereditary theory. I append a few.

CASE I.—Patient a tubercular leper; mother, brother, and father died lepers.

CASE II.—Mixed leper; father alive, a leper; on his mother's side, mother's father a leper.

CASE III.—Patient a tubercular leper; mother a tubercular leper; father mixed leper; sister tubercular leper; son by outside woman a tubercular leper.

CASE IV.—Patient a tubercular leper; sister a mixed leper; father and mother were both lepers.

I was informed by one of the attendants at the Leper Asylum at La Laguna, Las Palmas, an asylum which is most beautifully kept (unfortunately it is situated in the middle of the town) that a large proportion of the inmates were near relatives. On the Upper Zambesi, Portuguese East Africa, leprosy is very prevalent amongst the tribe called the Sennas. Natives of this tribe do not marry outside their own tribe. Whether the disease is spread amongst this particular tribe solely by contagion, or whether the hereditary taint plays an important part in the transmission of the disease, I know not.

C. R. Maitland Pattison,
Late Assistant Medical Officer, Robben Island Leper Settlement, etc.

References.
[1] Manson, *Tropical Diseases*, fourth edition, p. 533. [2] Thin, *Leprosy*, p. 150. [3] Impey, *'Handbook on Leprosy*, p. 27. [4] *Journal of Leprosy Investigation Committee*, No. 2.

A CASE OF BENNETT'S FRACTURE.

A man about 25 years of age was sent to the out-patient department of the Swansea Hospital with a note to the effect that he had a dislocation of his thumb which could not be kept in place. The injury was received in a fight whilst delivering an "upper-cut." A diagnosis of Bennett's fracture was made and confirmed by the skiagram.

Although the lesion is described in the more modern surgical textbooks, it is said to be frequently mistaken for a subluxation backwards of the thumb, as in this case. No doubt the reason for this is that the description of this injury as a special fracture is not so generally known as might be expected, for the diagnosis presents no difficulty if this fact be borne in mind. The treatment of this lesion is well described in Thomson and Miles's *Manual of Surgery*.

C. Leonard Isaac, M.B., B.C.Cantab., F.R.C.S.E.
Swansea.

NO DRESSINGS FOR SURGICAL WOUNDS.

I read with interest the contributions by Messrs. Madden and Dalton in your issue of September 28th, following that of Mr. Alcock,[1] on the use of iodine as the sole application to operation wounds.

The writers of these articles suggest that the satisfactory wound healing obtained by this method is due to some intrinsic property of the iodine solution.

I do not think that this is so.

During the last twelve months or more I have dispensed with any dressing for certain operation wounds; boracic or talc powder is dusted on to the surface of the incision at the conclusion of the operation and again after the stitches have been removed about seven days later. If the wound is in a moist area, powder is more frequently applied.

I at first used this method only in the case of hernia wounds in children, but I have latterly extended its use in adults to inguinal and abdominal wounds, when the support of a bandage has not been considered necessary. The total number of cases I have so treated is 133:

Children.—Hernias	...	...	...	34
Other cases	...	...	...	7
Adults.—Hernias	...	...	...	56
Laparotomies	...	...	...	16
Other cases	...	...	...	20

Healing took place by first intention in all cases except one—a femoral hernia. In this instance the infection was evidently of deep origin.

The skin wounds have shown hardly any sign of local reaction, certainly much less than those which I have seen treated by repeated painting with iodine. In all cases care was taken to obtain close apposition of the skin edges in the whole length of the incision. The preliminary skin preparation was carried out in most cases by the application of a 2 per cent. solution of iodine; in a few days a 5 per cent. solution of cresol in methylated spirit was used. I do not put this method forward as being particularly novel, but I quote it in order to show that an exposed dry wound heals excellently without the application of any antiseptic.

C. M. Page, M.S.Lond., F.R.C.S.
St. Thomas's Hospital, London, S.E.

[1] British Medical Journal, February 3rd, 1912.

Reports
ON
MEDICAL AND SURGICAL PRACTICE IN THE HOSPITALS AND ASYLUMS OF THE BRITISH EMPIRE.

NORTHERN HOSPITAL, LIVERPOOL.

A CASE OF DEATH FROM INTESTINAL HAEMORRHAGE.

(Under the care of Mr. Murray and Dr. Bushby.)

[Reported by Max Greenberg, M.D., Ch.B.]

The following case is recorded because of the unusual nature of the complaint, and also on account of the difficulties in connexion with the diagnosis and the treatment:

Mrs. S., a married woman, aged 50. Had had two children. Menstruation ceased at age 34. She was sent into hospital on June 24th, 1912, on account of pain in the right side of the abdomen. She attributed this pain to a strain caused by lifting a heavy box three months previous to admission; otherwise there was nothing in her previous history which threw any light upon her present trouble. The pain subsided a few days after this strain, only to come on again whenever she exerted herself.

On June 18th, whilst attending to her household duties, she was seized with sudden severe pain in the right side of the abdomen. She was obliged to take to her bed, and remained there till the day of admission to hospital. She vomited frequently from June 21st to the 24th. Had always suffered from constipation. No history of jaundice and no haemophilic history.

Condition on Admission.

Her general condition strongly suggested that there was some acute trouble in the region of the gall bladder. The right rectus muscle was very rigid, but a definite mass could be made out just below the ninth costal cartilage, and there was marked tenderness on palpating over that area. The breath was very foul.

On June 25th she vomited twice; castor oil was given and an enema administered; the evacuation was dark but not blood-stained.

The following day the bowels acted and a little blood was present; breath still foul.

On June 27th she vomited twice, and there was a large quantity of bright red blood with stool; pain in hypogastrium very severe.

On June 28th the abdominal pain became so severe that morphine had to be administered hypodermically, and at this site there appeared an extensive subcutaneous haemorrhage. As the extravasation of blood might have been due to the needle wounding a vein, the skin of the other forearm was pinched, and in a short time a definite ecchymosis followed. It was therefore clear that we had to deal with a patient suffering from a grave blood disorder, and by no means a suitable subject for an abdominal operation. We kept her under observation for another two days, and then transferred her to one of the medical wards, in charge of Dr. Bushby, where she remained comparatively well for five days. Her breath had become sweet, and no more blood appeared in her stools.

On July 5th, five days after her admission to the medical ward, she again began to complain of pain, but in the left iliac fossa, and on examination a definite lump was made out in that region. On the following day a severe attack of melaena set in; she lost 4 pints of blood, the pulse became rapid and feeble, and she died of haemorrhage.

Post-mortem Examination.

Skin pale, with subcutaneous haemorrhages.
Lungs congested and oedematous; no fluid in pleura.
Heart soft and pale.
Small Intestine.—No ulceration.
Large Intestine. — Extensively ulcerated. Many shallow ulcers, chiefly run transversely to gut; elongated and irregular in shape, more circular towards sigmoid. Roughened bases, confined to mucous membrane only.
Liver fatty and soft.
Gall bladder distended, and containing sand.
Kidneys.—Left, soft; weight 5 oz. Right, weight ½ oz. Capsule adherent and thickened; irregular surface. Kidney substance entirely disappeared, except a very small piece in centre. Ureter patent.

Except as a complication of typhoid fever, it must be very rare for a person to die in hospital from intestinal haemorrhage. The enlargement of the gall bladder and pain in that area at first suggested biliary colic, but when large quantities of blood were got rid of by the bowel a different light was thrown upon the case, and made it still more difficult from a diagnostic point of view.

Mr. Murray thought it wise to postpone operation for a few days, and when his attention was directed to the subcutaneous haemorrhages he decided not to operate, and consulted Drs. Bushby and Warrington, who also came to the conclusion that the case should be treated in a medical ward. At this stage the patient had improved greatly; she was free from pain, and the bowel evacuations were normal.

With regard to diagnosis, Henoch's purpura, ulcerative colitis, ulceration of gall stone into bowel, and malignant disease of the large intestine were considered, but it was difficult to come to a definite conclusion. Although ulcerative colitis strongly suggested itself, yet the subcutaneous haemorrhages could not be accounted for.

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

DORSET AND WEST HANTS BRANCH.

At the autumn meeting of the Dorset and West Hants Branch, Dr. Bottomley, Vice-President, read a paper on *Neuritis*, true and false. He pointed out that the term "neuritis" had been much more frequently used of late for a variety of pains. He then discussed the diagnostic value of the symptoms of neuritis—the pain, anaesthesia, wasting, paraesthesia, and vasomotor disturbances. He expressed the opinion that some painful conditions, which it was the custom to call neuritis, would be more accurately termed toxic neuralgia and other referred pains; he related cases showing that pains referred from the viscera to the chest sometimes extended to the arms, while those referred to the lumbar region sometimes extended to the lower limbs, and that in both cases the pain in the limbs was accompanied by such sensations as pricking, burning, and numbness. He considered that no distinction could be drawn between such sensations and those which are termed "acroparaesthesia," and suggested that a painful impulse arising in the viscera might radiate to that part of the spinal cord connected with the sensory nerves for the limbs, and, at the same time, by affecting the nerve cells whose function was to deal with touch and heat, give rise to feelings of pricking and burning, as well as pain. Such subjective sensations simulated, in his opinion, very closely the symptoms of neuritis; from the point of view of treatment it was important to distinguish them. Mr. R. Mercer called attention to diabetes and alcohol as causes of neuritis; he said that indefinite pains were usually called rheumatic, but were sometimes caused by such serious conditions as aneurysm or calculus. Dr. Manning was convinced that rest was the best cure for neuritis. He had used ionization, and had been particularly pleased with the effect of salicylic ions. Dr. Alexander mentioned some cases where neuritis had been simulated by malignant tumours. Dr. Saberton asked Dr. Bottomley whether deficiency of HCl in the stomach had any influence in the etiology of neuritis. Dr. Girling asked whether paralysis of the soft palate necessarily had a diphtheritic origin, or whether other organisms were capable of giving rise to neuritis of the palatine nerves. Dr. Middleton agreed that neuritis was too frequently diagnosed. He recommended counter-irritants in the treatment of the condition. Dr. Simmons agreed with Mr. Mercer that aneurysm should be excluded before a diagnosis of neuritis was made. He was much impressed with the value of ionization, and had had personal experience of the relief it afforded. The President (Mr. F. Winson Ramsay) disagreed with a statement Dr. Bottomley had made that the pain felt at McBurney's point in appendicitis was a referred pain. Dr. Bottomley replied. Mr. C. B. Thomson read notes of a case of *Tetanus successfully treated by Baccelli's method of carbolic acid injections* after the injection of antitetanic serum had failed. The period of incubation was eight days; the injections were commenced on the twelfth day (the fourth after the onset of symptoms), when the patient seemed moribund; 30 minims of a 5 per cent. aqueous solution of carbolic acid were injected every two hours; 139 injections were given, equal to 210 grains of carbolic acid; the urine was scanty at first, but there was never any sign of carbolic acid poisoning. The patient was shown in good health. The President congratulated Mr. Thomson on the successful result. The discussion was continued by Dr. Batterbury, Dr. Le Fleming and Mr. Belben.

YORKSHIRE BRANCH.

At a meeting held at Scarborough on October 26th, Dr. Hardwicke showed a case of an *Unusually large thyroid*. As the removal of the tumour was impossible, owing to the condition of the patient, a 4 in. tracheotomy tube had been introduced, through the thyroid into the trachea, and had been in position for five years. The patient, a farm labourer, had worked ever since. Dr. James Allan (Leeds) showed a uterus from a girl, aged 15, enlarged and hypertrophied, and presenting no cervical canal. Dr. Cuff (Scarborough) read notes on a case of influenza. An old lady who had suffered from senile dementia for some time contracted influenza, and in a few weeks her mental condition had improved in a marked degree. Dr. Oldfield (Leeds) read a paper on the *Treatment of fibroid tumours of the uterus* from an experience of over 200 cases. He said he was far from believing that every fibroid tumour of the uterus should be operated upon, and even when the growth was found to be of considerable size, unless symptoms were directly referable to it, they might safely ignore the advice of their American and Continental friends, and leave it alone. He had met with between 20 and 30 cases where fibroids of some size had produced few or no symptoms. He mentioned that sometimes patients with sterility due to a fibroid did not complain directly of that symptom; this was the case particularly with Jewesses. It could not be claimed, however, that the removal of the fibroid would always cure the sterility. The medicinal treatment of menorrhagia due to fibroids was discussed, and it was concluded that drugs had little or no effect on that symptom, rest in bed being the best means of checking the loss. In patients anaemic from menorrhagia it was shown how inadvisable it was to persist in expectant treatment of the disease, even when the patient was approaching the climacteric period, for the extreme anaemia and the accompanying cardio-vascular changes lessened the safety of operative treatment. As to the treatment of fibroids during pregnancy and labour, although commonly met with, Dr. Oldfield remarked that he had found it necessary to interfere surgically in only one case, and expressed the opinion that, generally speaking, the best results were obtained by non-operative treatment. In illustration of this point several cases were mentioned. The operative treatment of fibroid tumours was next briefly referred to. It was pointed out that although myomectomy was the ideal operation, in that the uterus was left to perform its function, the operation was not quite as safe nor as easy as the radical operation, that the symptoms sometimes recurred, and that patients often remained sterile. Hystero-myomectomy, leaving the cervix, appeared to him to be the most satisfactory operation. As a general rule it was a very safe operation, and the results were equal if not superior, regarded from every point of view, to those of any other abdominal operation. The various changes that take place in fibroid tumours were illustrated by examples, and the dangers of the infections and degenerations were commented on. There were 175 cases in all which came to operation with 3 deaths—120 abdominal operations (myomectomy and hystero-myomectomy), with 2 deaths; 51 vaginal operations with 1 death. In conclusion, he again emphasized the necessity for operative interference when (1) anaemia developed; (2) urinary or pressure symptoms manifested themselves; (3) in cases where infection or degeneration had supervened.

In the list of mayors elected on November 9th are the following members of the medical profession: Dr. S. R. Alexander, Faversham (re-elected); Dr. J. P. Atkinson, Saffron Walden (re-elected); Dr. E. Cureton, Shrewsbury; Alderman Dr. Fern, Congleton (re-elected); Dr. W. S. Gibb, Hartlepool (re-elected); Alderman Dr. O. Wynne Griffith, Pwllheli (re-elected); Dr. G. W. Joseph, Warrington (re-elected); Alderman Surgeon-Major E. L. McSheehy, Wimbledon (re-elected); Dr. W. B. Maurice, Marlborough; Dr. J. Rafter, Bootle; Dr. H. Stallard, Newark; Alderman Dr. Young, Bolton.

Reports of Societies.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

Wednesday, November 6th, 1912.

Mr. J. M. Cotterill, President, in the Chair.

Perforated Duodenal Ulcer.

Mr. J. W. Struthers analysed 26 cases of perforated duodenal ulcer which had fallen to his experience. The ages ranged from 14 to 69 years, but the majority were between 30 and 50. The series included 1 female. As to previous digestive history, there were marked dyspeptic symptoms, especially pain and flatulence, but only rarely vomiting and melaena, in 17 cases; slight and quite indefinite symptoms in 5; and a complete absence of dyspepsia in 4. A negative dyspeptic history was therefore of no value in excluding duodenal ulcer. In no case were these symptoms premonitory of perforation. After the initial acute pain and shock there might occur apparent improvement; in 4 cases this was so marked as to make diagnosis difficult, and in them on operation the leakage was found to be slight. In all the perforation was on the anterior duodenal wall, 1 to 1½ in. from the pylorus. As to the operation, he had found chloroform the safest anaesthetic, without the previous exhibition of a sedative; it might be supplemented by ether in the later stages, if necessary. He closed the perforation by infolding the pyloro-duodenal junction and suturing with No. 2 or 3 non-chromicized catgut. Excision of the ulcer was unnecessary. If the condition of the patient permitted he advised the addition of a gastro-enterostomy in every case, both to obviate the effects of a duodenal stenosis, which might be considerable, and also to prevent the recurrence of ulceration. While swabbing out excess of peritoneal fluid, he regarded lavage as unnecessary and probably harmful. After the completion of the operation a dose of morphine or heroin sufficient to procure a few hours' sleep was given; water was allowed from the first; fluid food by the mouth in twenty-four hours, and soft food in a few days. His results were—2 deaths before operation and 5 after it, making 19 recoveries out of 24 operated cases. Of the 19 recovered cases, the after-history had been obtained in all but 2, showing a complete recovery of health in 14 and the recurrence of some dyspepsia in 3.

The President said that melaena had been a commoner feature of these cases in his experience. In cases of doubtful diagnosis he advised two separate incisions—the first, suprapubic, which could serve later for drainage, and the second over the duodenal region. Professor Caird thought ruptured duodenal ulcer was more serious than gastric ulcer. Though general lavage was not necessary, he never omitted to wash out the pouch of Douglas, and always left a suprapubic glass drain. Mr. Cathcart thought peritoneal lavage, though not necessary in small effusion, should be done if the effusion were large. In the latter cases subphrenic abscesses might result from the omission of this procedure. The presence or absence of previous digestive symptoms might be due to the presence or absence of inflammation round the ulcer. The hunger-pain and other symptoms were not pathognomic of duodenal ulcer, but were due to hyperchlorhydria. Professor Thomson said he had never seen a case of perforated duodenal ulcer die of shock, and he agreed as to the advisability of gastro-enterostomy. In his experience perforating duodenal ulcers were not frequently associated with haemorrhage and melaena. Mr. Wallace recalled 3 cases in which the reaction and improvement after perforation were very marked, and in all of which the aperture was the size of a shilling. He quoted from one large series of statistics to show that the addition of gastro-enterostomy did not appreciably increase the percentage of cures. Mr. Miles said the leakage after perforation was generally slight, a result probably due to the immediate closure of the pylorus. He had once seen during operation a duodenal ulcer perforate, and the only escape was of a small jet of air. He used silk for suturing, and generally washed out the peritoneum. Gastro-enterostomy should be done, if not adding to the patient's risks. Mr. Dowden said local pain on abdominal percussion was an aid in diagnosis. He had done pyloroplasty in 5 cases, with four good results. He always washed out the peritoneum freely. Mr. Wilkie said that the first part of the duodenum had a precarious arterial supply, and this was probably a factor in causation, especially in men over 48 who had worked hard, drunk hard, and showed arterio-sclerosis.

ROYAL SOCIETY OF MEDICINE.

Clinical Section.

Friday, November 8th, 1912.

Sir William Osler, Bart., President, in the Chair.

Exhibition of Cases.

The following cases were shown, amongst others:—Dr. M. A. Cassidy: A woman, aged 26, with *Rheumatoid arthritis*. She had the disease in an advanced stage, and had been bedridden and unable to stand for more than a year. Other methods of treatment having failed, she had been fitted with a Hoefftcke's splint, and could, when exhibited, walk without attracting attention. Mr. Wilfred Trotter: A man, aged 49, who had suffered from advanced *Carcinoma of the epiglottis*, with involvement of the glands. He had been treated by operation without laryngectomy in November, 1910, and no recurrence had followed. The case was shown as an instance of the curability of advanced carcinoma of the upper opening of the larynx, and to show that cure could be effected without removal of the whole larynx. Dr. W. Essex Wynter: *Acholuric jaundice* in a woman aged 22. Bilirubin was present in the serum but not in the urine. The question of operation by splenectomy was raised. Mr. Lawrie McGavin: (1) Two cases in which resection of the caecum, ileo-caecal valve, appendix, and 10 in. of ileum had been successfully performed—in the first for chronic appendicitis, in the second for obstruction following an entero-anastomosis. In the latter a ventral hernia had followed and was cured by filigree implantation. (2) The case of a man aged 24, in whom the caecum, ileo-caecal valve, appendix, and 5 in. of ileum had been resected for sarcoma. The patient's desperate state had necessitated the use of a *Murphy button* for anastomosis. The button had not been shifted for four years and caused no inconvenience. Dr. F. E. Batten: Celluloid splints as used in the treatment of *Acute poliomyelitis*, illustrated by two cases. The advantages of the splints were that they were easily made, extremely light, fitted the leg accurately, could be applied within the first few weeks of the disease, were not expensive, and could be worn not only during the earlier, but also during the later, stages of the disease. Mr. E. C. Hughes: Two cases of congenital *Syphilitic disease of the knee-joint* in a boy and girl aged 12 and 13 respectively. Mr. Donald Armour: Chronic circumscribed *Inflammation of the corpora cavernosa*. It was painless and caused dorsiflexion of the penis on erection. The patient denied syphilis, and it had not reacted to antisyphilitic treatment. Dr. James Galloway: (1) *Tuberculous peritonitis* in a boy aged 10. The case was shown on account of the early and extensive infiltration of the omentum with adhesions to the anterior abdominal wall and the special involvement of the superficial structures in the neighbourhood of the umbilicus. (2) A case of *Sclerema cutis* (adultorum). It had improved considerably by vigorous massage. Dr. Robert Hutchison: A man, aged 39, with *Hirschsprung's disease*. The whole of the colon was enormously distended and constipation was obstinate.

Section of Laryngology.

At a meeting on November 1st, Mr. Herbert Tilley, President, in the chair, the following were among the exhibits: A man, aged 21, from whom Mr. Tilley had removed a large fibroma by the nasal route. The cheek and lip were turned up on one side and the ascending process of superior maxilla removed. The base of the growth was freed by scissors, and a wire snare also employed. A laryngotomy was not employed in the first instance, but recourse to a tracheotomy was found to be necessary later. Dr. Fitzgerald Powell recommended a preliminary laryngotomy as a routine in these cases. Mr. Harmer related the easy removal of a pulsating growth where he employed temporary ligature of the external

carotids. Mr. Paterson remarked that these cases, though rare in this country, were more frequent in Austria. Dr. Dundas Grant recommended the use of a raspatory for the removal in early cases, and considered the antrum as the common site of origin. The President, in his reply, insisted on the convenience of a preliminary laryngotomy, and advised the more frequent employment of Voltolini's method of electrolysis. Dr. Dan McKenzie: A case in which *Denker's operation* for maxillary antrum suppuration had been performed. The anterior corner walls of the cavity were removed so as to connect the opening in the canine fossa with that made in the inferior meatus of the nose. There was no deformity in this case, though such had been reported in other cases. It was possible to look directly into the antrum. The President mentioned that the lacrymal duct had been damaged in the performance of Denker's operation, and this had given rise to a great deal of trouble. Mr. Tweedie: Specimens of epithelioma from a man in whom both tonsils and the cervical glands on both sides were affected. Sir StClair Thomson related an instance in which both tonsils were sarcomatous. Sir Felix Semon suggested contact infection. Sir StClair Thomson: Two cases of Killian operation for frontal sinus suppuration. They were shown to illustrate (1) the severe pain for which the operation was performed; (2) the satisfactory cosmetic effect; (3) the complete cure of suppuration. He recommended the immediate closure of the frontal wound or delayed closure, according to circumstances. In some instances it was more dangerous to leave open than to close. The use of a frontal and orbital dressing pad was important. Mr. Paterson recommended that the frontal wound should be left open one week. Dr. Watson-Williams advised closure after forty-eight hours and the use of paraffin one year later to improve any deformity. Dr. Dan McKenkie said his practice was to insert sutures at the time of operation and adjust these later. Mr. Hope advocated the use of massage to loosen the scars. The President insisted on the importance of keeping the frontal wound open, for any invasion of the cancellous tissue led to fatal osteomyelitis. Dr. Hunter Tod: A case of *Malignant disease* originating in the sphenoidal sinus, which developed proptosis as the first symptom. There was no pain, thanks probably to the removal of the anterior and sphenoidal wall and the relief of tension.

Section of Ophthalmology.

At a meeting on November 6th, Sir Anderson Critchett, President, in the chair, the following were among the exhibits:—Mr. Herbert Fisher: A case of *Subhyaloid haemorrhage*. This term should, he thought, be abandoned, as the haemorrhage was intraretinal; "semilunar retinal haemorrhages" would be appropriate. Mr. A. W. Ormond: A case of *Pemphigus of the conjunctiva*, followed by essential shrinking. The patient was aged 24, and his condition as well as his sight were now so bad that he pleaded for something to be done. Mr. Ormond proposed to clear away the conjunctiva as much as possible and substitute mucous membrane from elsewhere. Mr. Fisher mentioned a corresponding case, in which a vaccine made from the contents of the patient's own vesicles was administered for some time, but without marked benefit. Mr. E. Nettleship read notes of a case in which a sarcoma of the choroid was seen as a small spot of disease, about years before the diagnosis of tumour was made, and twenty-five years before removal of the eye. The case showed the importance of watching over long periods, when possible, the behaviour of certain solitary spots or patches of dusky discoloration that were occasionally seen in the choroid during ophthalmoscopic examination. Such solitary, non-inflammatory patches might sometimes be the counterparts of the minute sarcomatous growths, of which nine or ten examples had been accidentally discovered after death during the last few years. Mr. Nettleship also read a joint communication by himself and Mr. A. Hugh Thompson on an extensive pedigree of *Leber's disease* of the optic nerve. It illustrated the occurrence of the malady in females, recovery in some cases in both sexes, descent to all the children of one of the affected women, diabetes with blindness of unknown nature in one member, high infantile mortality in the very large family of one affected man, and absence of influence of the optic nerve disease upon prospect of life. Mr. A. W. Ormond described a case of *Retino-choroiditis juxta-papillaris* in a man aged 20. The condition came on suddenly. On awakening one morning the patient noticed he could not see clearly with his right eye. He had had a little pain in it a week previously. On examination there was found keratitis punctata, and a patch of acute choroiditis touching the upper margin of the optic disc and spreading upwards. Oedema of the retina spread over and beyond the patch. Vessels which passed over the inflamed area were partly obscured, and the arteries diminished in size; there was also some haze in the vitreous. Von Pirquet's reaction was positive. The inflammation gradually subsided, and the patient now had full visual acuity, but a large sector of his field of vision, stretching from the blind spot to the extreme periphery, was entirely absent, and he had no perception of light in the area affected. The defective area in the field of vision was clearly due to the obliteration of a branch of the central retinal artery by the pressure of the inflammatory swelling. Under the title "Retino-choroiditis juxta-papillaris" Professor Jensen, of Copenhagen, published four similar cases in Graefe's *Archives* in 1909.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.

At a meeting on November 1st, Dr. G. P. Shuter, President, in the chair, the following were among the exhibits:—Mr. Aslett Baldwin: A case of *Tuberculous disease of the knee-joint* in a girl aged 12. The right knee-joint was distended with fluid, there was some thickening of the synovial membrane, but a remarkable absence of pain, tenderness, and rigidity. The disease dated back about eight months. There were no signs of congenital syphilis, a Wassermann reaction was negative, but a positive von Pirquet reaction was obtained. Mr. E. P. Isaacs Coke: A case of *Polycythaemia* in which the erythrocytes varied between 6 and 12 millions. The complexion of the man during ten years' observation had always been of a deep red hue, the mucous membrane almost purple, and the conjunctivae injected. Before a severe haemorrhage, following the extraction of some teeth, the spleen was 2 in. below the costal margin; a month later it was only just palpable. The patient suffered from headache, giddiness, and general weakness. Rest seemed to be the only treatment from which he derived benefit. Mr. T. C. Storey (for Dr. H. J. Davis): *Hernia cerebelli* in a boy aged 8, following the evacuation of a cerebellar abscess six months ago. The hernia was kept bandaged under pressure, and had completely disappeared. Dr. Grainger Stewart remarked that in his experience this was the most successful method in dealing with cerebral herniae. Dr. F. S. Palmer: Two cases of characteristic *Friedreich's ataxia* in a brother aged 16 and a sister aged 18. In each case the disease seemed to have some relation to an attack of influenza acquired about three years ago. The only other child in the family, a brother aged 19, was healthy, both parents were alive and well, and no history of nervous disease could be traced in previous generations nor among the collateral branches. Dr. H. Pritchard: A case of *Aneurysm of first part of the aorta* coming through sternum in the region of the third right costal cartilage in a man aged 43 years. He had been in the army, and served through the South African war. Dr. Pritchard drew attention to the signs of pressure on the superior vena cava, not a common phenomenon, but well seen in this instance. The patient gave a positive Wassermann reaction, and had much improved under treatment with iodides and rest. Dr. A. E. Saunders and Dr. A. C. D. Firth: A series of eight *Cretins* and two children affected with goitre. Dr. Firth, when showing his four cretins, desired to draw attention to the fact that frequently at the commencement of thyroid treatment the patient became bald, and afterwards grew a stronger and thicker crop of hair. Also that occasionally an overdose of thyroid might result in the production of glycosuria. The girl, aged 14 years, mentally rather backward, developed slight glycosuria on taking 7 grains daily. She had been under treatment since the age of 6 months, and now took 5 grains daily. Dr. T. Grainger Stewart: A case of pituitary tumour in a man aged 52. Progressive failure of vision during the

last seventeen years, commencing in the temporal fields' had reduced the patient to such a condition that he only retained a reduced nasal field in the left eye. He became pale, waxy looking, and adipose. Loss of hair was a marked feature, and he showed regression towards the female type. Testicular atrophy developed years ago, and along with these changes an increase in the size of the hands and the malar region of the face. There was an increased sugar tolerance, and an *x*-ray examination revealed enlargement of the sella turcica. Some signs of acromegaly were present, but in the main the symptoms pointed to a loss of function of the posterior lobe, or hypopituitarism. Mr. Bishop Harman referred to 2 cases he brought before the society last year. They had been under treatment for two years, and had remained quite stationary. In one case thyroid extract, 15 grains per diem, was administered for a month, then a rest for a fortnight; the patient said she appreciated an improvement in her condition each time she resumed the extract. In the other case a man who lived in the country attended the local slaughter-house, and extracted the pituitary body of sheep and oxen for immediate consumption! In neither case had any acromegalic symptoms appeared. Dr. J. Bernstein: Two cases of *Glossitis due to syphilis*, and wished to point out the frequency of a negative Wassermann reaction associated with chronic tertiary lesions in acquired or congenital cases: One was a woman, aged 35, suffering from congenital syphilis. The tongue showed chronic thickening with fissures, and obstinate dyspepsia was a secondary result of the painful condition of that organ. In spite of the presence of Hutchinson's teeth and a family history of syphilis, the Wassermann reaction was negative, but this would not prevent immediate treatment with salvarsan. The other was a woman, aged 75, showing chronic superficial glossitis of a different type, the tongue being glazed. In this case the Wassermann test gave a positive reaction.

LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY.

At a meeting on November 8th, Dr. J. Dobson, President, being in the chair, Dr. Maxwell Telling, in a paper on the clinical aspects of primary intrathoracic malignant disease, expressed a belief that the condition was much less rare than it was said to be. The possibility of its presence should be borne in mind in all cases of intrathoracic disease presenting unusual features. In such case stridor was often a comparatively early sign. Mr. Lawford Knaggs showed two cranial specimens, one presenting a wound of the superior longitudinal sinus resulting from a dog-bite, and the other a necrosis following a burn. The latter was associated with extradural suppuration and septic thrombosis of the superior longitudinal sinus. Mr. W. Gough showed a specimen of *Epithelioma of the vulva* involving the rectum, and emphasized the importance of a very wide removal of the growth in such cases. Mr. A. D. Sharp showed a girl, aged 12, suffering from laryngeal tuberculosis, which began by a deposit of small yellow tubercles along the free border of the epiglottis. Three weeks later the whole of the epiglottis and the loose folds of the larynx presented typical pseudo-oedematous thickening, and tuberculin (B.E.) was given. After the first dose the tubercles began to resolve, and after four injections the epiglottis returned to its normal size. The patient had had seven injections, and now there remained only a small deposit in the left arytenoid region.

LIVERPOOL MEDICAL INSTITUTION.

At a pathological meeting on October 31st, Mr. F. T. Paul in the chair, the following were among the specimens of malignant disease exhibited:—Mr. Courtenay Yorke: *Carcinoma of the oesophagus*, involving both recurrent laryngeal nerves. During life there was complete paralysis of the larynx. Dr. R. E. Harcourt and Mr. Bickerton: An epibulbar *Melanotic sarcoma* in a woman aged 37. Mr. Arthur Evans: An *Epithelioma* in appendicitis scar. Drs. Buchanan and Lissant Cox: Carcinoma of an *Accessory thyroid*, or of the thyroglossal duct. Mr. Thelwall Thomas and Dr. Rees: (1) Papilloma of the prepuce, showing early malignancy; (2) malignant breast, showing pigmentation due to haemorrhage from previous operation. Mr. F. T. Paul gave a photomicrographic demonstration, with lantern slides, of epitheliomata of varying degrees of malignancy, and pointed out how an accurate prognosis could be given from the appearances of the sections. His opinions had been confirmed by the subsequent histories of the cases. Dr. Hubert Armstrong read a note on a case of endothelioma of the heart, and demonstrated the sections and drawings made for him by Professor Mönckeberg. The tumour was a lymphangio-endothelioma of the A–V node, causing heart-block with Stokes-Adams syndrome in a boy aged 5 years. The case had been reported in full in the *Deutsch. Archiv. f. klin. Med.*, March 13th, 1911. Dr. Wakelin Barratt, in a paper on recent experimental investigations in regard to the production of immunity to carcinoma, called attention to the fact that many living tissues from the mouse or the fetal mouse appeared to have the power of producing immunity or of arresting the growth. The tissues used must be living. Mr. F. T. Paul thought the cure of carcinoma by therapeutic methods was far distant, but hoped that experimental research would be continued with vigour. Dr. Blair Bell believed that a method for treating cancer therapeutically was within sight; if not an absolute cure, at least one which would supplement surgical procedures. Mr. Rushton Parker was particularly impressed by the modest and restrained manner in which the various facts in Dr. Barratt's paper had been put forward. It was most important that no false hopes should be raised.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.

At a meeting on November 1st, Mr. Freeland Fergus, President, in the chair, Professor A. R. Ferguson, of Cairo, in a lecture on bilharzial disease, said its distribution throughout the East was largely determined by the great religious pilgrimages, especially that to Mecca, where the disease was very prevalent. It occurred also in Cyprus, Mauritius, and the West Indies. It had been carried by troops engaged in the South African war to many parts of the Empire, and similarly by American troops from the Philippines to many parts of the United States. The great number of remedies for haematuria used by the ancient Egyptians, and the existence of vesical calculi in mummies of almost every dynasty, suggested its existence in Egypt from the earliest times. Dr. Ruffer, of Alexandria, had demonstrated calcified bilharzia ova in the kidney of a mummy of one of the later dynasties. It was most probably by bilharzial disease that the strength of the armies of Alexander the Great and of Napoleon was so greatly reduced during their respective occupations of Egypt. At present the disease was extremely common in Cairo; the speaker had been able to demonstrate by special methods the presence of ova, recent or calcified, at as many as 61 per cent. of 600 consecutive autopsies on male subjects. Infection took place from man to man; there was no intermediate host. The ova were expelled with the urine or faeces, and if they fell into fresh water they developed in a few minutes into active ciliated embryos (Miracidia). These could hardly infect by the gastro-intestinal tract, as they succumbed to even three minutes' exposure to 1 in 2,000 hydrochloric acid; nor could they probably penetrate the unbroken skin. Infection doubtless occurred by a mucous surface, possibly the genital, but more probably the nasal, as the habit of ablution before prayers as practised by the poorer Moslems favoured this route. After its entrance the Myracidium became a sporocyst, and found its way to the liver. The sporocysts were male and female, and infection usually took place with both sexes simultaneously. If so, the young worms developed from the sporocysts, passed into the portal vein, united sexually, and then made their way in couples into its smallest branches, especially to those of the inferior mesenteric vein. There in the walls of the bladder and colon occurred the chief deposition of ova, from which arose the main symptoms of bilharziosis. If, as occasionally happened, the infection were chiefly by male sporocysts, the resulting damage to the tissues was not great, as the male worms developed therefrom did not pass beyond the larger branches of the portal vein. If the infection were mainly a female one, the resulting female worms lingered in the liver till a subsequent infection with male sporocysts allowed of sexual conjunction, when the conjoined worms were able to migrate as described. But

while still in the liver the female worms produced immature ova, characterized by an obliquely placed lateral spine which, penetrating through the walls of the portal radicles, irritated the Glissonian tissue and produced a peculiar form of hepatic cirrhosis.

GLASGOW OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

AT a meeting on October 23rd, Dr. LINDSAY, President, in the chair, the following were among the exhibits: Dr. W. RITCHIE showed (1) uterus with fibroids; (2) tuberculous salpingitis. The peritoneum was found studded with tubercles. Hysterectomy was done on account of fibroids. Dr. LINDSAY delivered a presidential address on the ovary in relation to sterility and abortion. He desired, he said, to submit some impressions gained as a family physician in relation to the physiology and pathology of pregnancy along with evidence which appeared to give them some degree of plausibility. It was common knowledge that childbearing often ceased years before the cessation of menstruation, and that only very occasionally was it continued up to the menopause. It was common knowledge also that long intervals sometimes occurred between the birth of children and that during these intervals health was normal, and that there was evidently nothing to prevent conception taking place. What was the nature of this incapacity for childbearing? Was it pathological or physiological? In cases where the cure of some morbid condition resulted in the cure of sterility the sterility was properly designated pathological. But the question was whether the periods of lessened fertility which occurred generally among women were of this character; the fact of their being common was against their being so and pointed to physiological origin. If they were physiological, then current notions of the relationship between menstruation and ovulation must be revised. Ovulation might go on in absence of menstruation, but could menstruation go on in the absence of ovulation? Menstruation was abolished when the ovaries were excised, but that effect need not be due to abolition of ovulation; it might be due to the cessation of other activities of the genital glands. A menstruating uterus might be found associated with a newly ruptured follicle in the ovary, but the association was not as frequent as had been supposed. Between a follicle lately ruptured, one nearly ripe, and one degenerating, the distinction was not easy to make; at the best, opportunities for making observations on the human subject were infrequent. On that account evidence derived from the lower mammals had been given more weight than rightly belonged to it. Oestrus or "rut" in animals was homologous with human menstruation, inasmuch as the uterus underwent similar changes. Oestrus was accompanied by ovulation, and so long as it was always so the inference that menstruation was likewise accompanied by shedding of ova was not unreasonable. But it had been found that in some animals oestrus and ovulation occurred at different times. In bats oestrus occurred in autumn, but ova were not shed till later, the semen being stored in the uterus during hibernation. Some monkeys menstruated regularly, but it was almost certain that ova were shed only during a brief sexual period. Some of the phenomena of childbearing postulated a variability at different terms in the production of ova. Ovulation sometimes followed a cycle of its own: usually its periodicity agreed with menstruation. If a large series of births be arranged according to the age of the mothers, a curve was obtained which represented the rise and fall of fertility within the childbearing period; the curve rose rapidly to its maximum height between 29 and 30 years, and then fell rapidly. Age was not the only influence; it was modified also for a particular age and condition of life. If a woman had a child in the early twenties and after ten years' widowhood married at 35, her chances of issue were greater than those of a virgin marrying at the same age. Something of this kind was observed in domestic animals. It seemed clear with respect to the lower animals, and probably was true in regard to man, that the reproductive function tended to earlier disappearance when it had not been active at the appropriate time. That was a consideration which had not received the attention it deserved from those who had exercised their minds on the falling birth-rate.

Reviews.

CHEYNE AND BURGHARD'S SURGICAL TREATMENT.

THE second volume of CHEYNE and BURGHARD'S *Manual of Surgical Treatment*[1] has been enlarged and revised in its new edition. It deals with the surgical affections of the soft tissues and the bones, and contains also a division on amputations. The authors have continued to avoid the mistake of placing before the reader a number of alternative methods without comment, and the book is therefore not only a record of methods but a guide of much value. As an example may be taken a very common affection—tuberculous adenitis; in the description of treatment the different states and stages of the disease are separately discussed, and definite recommendations are made under each heading. Alternative methods of treatment are, of course, discussed, but in relation to the variations met with in the different diseased conditions, and are not set out simply as a catalogue. Another example of this method to which the reader may turn with profit is the description of the treatment of tuberculous teno-synovitis; it will be remembered that the first volume of the new edition contains a chapter on the use of tuberculin. New operative methods are also adequately described and illustrated—for example, arteriorrhaphy, and Matas's reconstructive method in the treatment of aneurysm. The following sentence sums up the authors' position on the question of the operative treatment of fractures:

> At the present time it is not considered justifiable to leave the patient with an ununited or badly united fracture, or even a recent fracture in bad position, if the fragments can be maintained in proper position by means of an operation.

There follows a discussion of the particular types of fracture for which operation is required. Another statement to which it is worth while to direct attention is found on p. 281:

> While we are not prepared to discard splints entirely we think that massage and careful passive movement may be associated with them to a far greater extent than has been the case hitherto, not only without risk to the union but with actual advantage to the patient.

Some surgeons will consider that this sentence might justifiably be strengthened. In discussing the treatment of so-called acute suppurative periostitis the following recommendation is made:

> When there is a considerable collection of pus beneath the periosteum three or four days after the commencement of symptoms the case is probably one of primary periosteal inflammation, and the medulla need not be opened at once.

Both the statement and the advice are open to doubt, and many surgeons hold that under such conditions the only safe line of treatment in a case of average virulence is to open the medulla without delay. The third division in this volume gives an account of the general principles governing the performance of amputations and of those procedures which are most frequently useful. The wisdom of not loading the text with the many named operations which are only performed nowadays on the cadaver is to be commended.

The third volume of the *Manual* corresponds to volume iv and part of volume v of the first edition. It deals with the surgical affections of joints, of the spine, and of the head and face. In every respect it has been brought up to date, and the revision has been thorough and adequate. The first section, on the treatment of joint diseases, is less altered than the others. There are, however, descriptions of new operative measures, and many new pictures illustrating them, in particular operations on fracture-dislocations, unreduced dislocations, and recurrent dislocations. Incidentally it may be noticed that the patient who is about to have a dislocation of the shoulder reduced (Fig. 5) has a very healthy-looking joint outline. In tuberculosis alone do we find operative measures less advocated; as the authors say, operations for this disease "are diminishing in number every year." Arthroplasty

[1] *A Manual of Surgical Treatment.* By Sir W. Watson Cheyne and F. F. Burghard. New edition, entirely revised and largely rewritten with the assistance of T. P. Legg and Arthur Edmunds. In five volumes. 1912. London: Longmans, Green, and Co. (Med. 8vo, vol. ii, pp. 598; figs. 252, plates 4. Vol. iii, pp. 603; figs. 271. 21s. net each.)

for ankylosis is among the new measures described and illustrated. The section on surgical affections of the head and face is enlarged to the extent of about 40 pages. Operative procedures for tumours of the brain are more fully described, and new measures, such as temporal and occipital decompression, are included. The article on the treatment of trigeminal neuralgia also is rewritten; the method by alcohol injections is described, and the operation recommended for removal of the Gasserian ganglion is that by resection of the zygoma and the low route. An important improvement in this edition is the redrawing of many of the old illustrations as well as the provision of new ones. There can be no question that the methods described throughout represent established and approved surgical procedure.

THE TREATMENT OF CONSUMPTION IN GENERAL PRACTICE.

The history of the treatment of consumption affords an apt illustration of a common human failing. We "all with one consent praise new-born gauds, though they are made and moulded of things past," and each novelty in the way of treatment has been taken up in turn, only in many cases to be dropped in favour of the next. To the older generation of physicians who have watched these fluctuations of therapeutic fashion during the last thirty years they must all of them, if rightly used, appear to be of some service, although none may be credited with the virtues that were attributed to them on their entry to the therapeutic stage. Cod-liver oil, hypophosphites, creosote, open air, forced feeding, sanatoriums, and tuberculin have all had or are having their day, and although some are apt to be discredited, it must not be forgotten that they have each achieved some measure of success as adjuncts in the control of the disease. In a large work[2] on the subject of the treatment of tuberculosis in general, Professor Albert Robin of Paris has examined the whole subject in a critical spirit, and laid down what, from his point of view, should be regarded as the correct lines to follow. The keynote of his teaching rings round the organism of the patient rather than that of the micro-organism with which he is affected. The tuberculous virus is widespread, but it only flourishes in certain cases and not in all. Amongst infected persons there is an obvious variation in their powers of resistance, and it is assumed that this must be traceable to some physical conditions which should be amenable to detection. Professor Robin has for many years past maintained that two such conditions can be discovered in the tuberculizable organism. The first of these consists in a variation from the normal interchange of gases during respiration. He has found that in most cases of infected persons there is a larger intake of oxygen during respiration, and that this phenomenon may be equally demonstrated in persons not as yet actually tuberculized but who have become infected at a later period. He thus sees in this altered interchange of gases an indication of susceptibility to tubercle. His second pretuberculous condition, to which he attaches much importance, is the variation in the fixation of mineral substances in the course of alimentation. These views have been subject to much adverse criticism at medical societies and congresses, but his faith remains unshaken and his therapeutic teaching is largely influenced by them. He lays down five general principles as a guide to the general management of tuberculous disease. He is altogether opposed to tonic treatment and excessive feeding, but lays stress upon the need for supplying the mineral constituents in which the tuberculous patient is deficient. He counsels the use of general antiseptic methods, advises local treatment of tuberculous foci whenever it is possible, and is in favour of antitoxic medication. In many chapters, and at great length, he sets forth the details of each of these in turn. Cod-liver oil, arsenic, and antimony are credited with powers of control over successive oxygenation, while bone dust, carbonate of lime, fluorides, silicates, and preparations of magnesium are relied upon to supply the needful mineral constituents. Antisepsis is achieved by inhalation, and tuberculin is to be used as an antitoxic. Of the latter Professor Robin is obviously sceptical, but he uses it as an adjunct to the older methods. It will thus be seen that he is not among those apt to praise new gauds, but gives full credit to the powers of once-vaunted methods of treatment which in his long experience he has found to give good results. The book is a very full one, dealing with the subject in every possible way. It is well arranged and well indexed, and should be of great service as a work of reference in the hands of all who are not dazzled by the latest discoveries, but can look at the disease as a whole and weigh the many conflicting points which arise in its treatment in the mental balance.

[2] *Traitement de la tuberculose.* By Albert Robin, Professor of Clinical Therapeutics in the Faculty of Medicine in Paris. *Thérapeutique usuelle du praticien.* Third series. Paris: Vigot Frères. 1912. (Demy 8vo, pp. 640. Price 8 francs.)

HYPNOTISM IN DISEASE.

Dr. H. Crichton Miller, in his book on *Hypnotism and Disease*,[3] has attempted the difficult task of writing a book suitable alike for practitioners and laymen. He gives a concise history of the origin, growth, and uses of psychotherapy, a subject of which hypnotism is an important branch. For the profession it is merely an introduction to the subject, and not a textbook; for the public it is a common-sense statement, free from exaggeration. It can be put into the hands of an intelligent and educated patient, who by its perusal will be helped to understand the *rationale* of the treatment.

The book points out both the uses and limitations of hypnotism. It makes no claim that it is a panacea, but draws attention to those psychic and psycho-physical conditions in which it should be chosen early as the best remedy at our command rather than relegated to the position of a last resource.

A good deal of evidence is brought to prove that hysterical and weak-minded persons are the least susceptible of cure by hypnotic suggestion, and that teachers and soldiers and persons subject to self-discipline form the best subjects. Dr. Crichton Miller looks upon such treatment as but an introduction to the longer process of re-education. "The fundamental therapeutic requirement" of neuropaths, he says, "is to regain control of their mental activities." "There are scores of mind-wanderers who regularly and unrestrainedly indulge in the vice of introspection." For these re-education consists at first in the practice of such simple exercises as rhythmic breathing, or recording certain objects seen during a walk, or the mechanical exercise such as crossing out a certain letter in the column of a newspaper. Such tasks develop concentration and attention, speed and accuracy. In a brief discussion of psycho-analysis, the author, while acknowledging the great value of Freud's work, controverts his claim that hysteria is always the result of a suppressed sexual trauma, and considers his elaborate technique by no means always necessary in unearthing a "submerged complex."

The use of "collective hypnotism" is considered to be specially helpful in the treatment of unusually self-conscious patients, such, for instance, as those who complain of morbid blushing, in whom nervousness may be so great as to make them unable to receive hypnotic suggestion when they are the sole object of the physician's attention.

Dr. Crichton Miller has something fresh to say about the treatment of the drunkard as distinguished from the dipsomaniac, who is a "psychopath from the beginning." He considers the treatment of the drunkard is "wrong in incidence and character." At present the severity of his punishment increases with the number of his convictions, whereas his actual moral responsibitity decreases as the vice takes stronger hold upon him. This, it is contended, indicates that the early punishment should be most severe and of a deterrent character.

[3] *Hypnotism and Disease: A Plea for Rational Psychotherapy.* By H. Crichton Miller, M.A., M.D. (Edin. and Pavia), with an introduction by Charles Lloyd Tuckey, M.D. London: T. F. Unwin. 1912. (Cr. 8vo, pp. 252. 5s. net.)

DISEASES OF THE RECTUM.

Probably no department of his work gives the practitioner more worry and annoyance than that associated with diseases of the lower bowel and rectum. It is a misfortune that patients too often do not seek advice till disease

is well advanced and the symptoms intolerable, and it is a double misfortune that patients are encouraged to treat themselves with the many quack remedies blatantly advertised. A work, therefore, like Dr. SAMUEL T. EARLE'S *Diseases of the Anus, Rectum, and Sigmoid*[4] will be warmly welcomed, as it is a complete study of the subject. The author's method is to give the results of his own experience, and at the same time to quote very freely the opinions and descriptions of others, chiefly his own countrymen. We cannot find that any part of the subject has been omitted. Indeed, we rather think that the author has permitted too much expansion. The chapter on Hirschsprung's disease, that on membranous colitis, the section on appendicostomy, and much of the anatomical and physiological chapter might quite well have been omitted without loss, but with great gain to the compactness and readableness of the work.

Constipation bulks largely in the author's mind, and in the book to the extent of thirty-four pages. A long quotation on the treatment of constipation by psycho-therapy, from the work of Dr. Lyon, of Buffalo, is introduced: it is a dissertation which has for its text, "The final cause of habit constipation is habit"; it discusses fully, training in habit, accessory stimuli to action of bowels, and demands from the physician unlimited self-confidence, moderate knowledge of psychology, and from the patient enthusiasm with active co-operation.

In such a book the section on pathology and treatment of rectal cancer must always attract the reader's attention, but especially this year in view of the address and discussions in the Surgical Section of the Annual Meeting.

Dr. Earle regards medullary cancer as the most malignant form of rectal cancer—in the Address in Surgery it was held to be the least malignant. He holds that the sacral and perineal route is the most suitable for removal of all tumours within the first 5 in. of the anal margin, and that in any case it is sufficient to cut through the bowel 1 in. above and below the tumour, thus differing from some of the more radical opinions expressed in the discussion on rectal cancer in the Surgical Section. Of adenoma of the rectum the author says "this tumour must be regarded as originating from cell nests." The last phrase is usually reserved for a distinctive appearance in sections of epithelioma, and should, we think, not be used in any other connexion. We do not know what the author means by "cell nests."

The illustrations are on the whole well done, but the text is much too diffuse. The book is undoubtedly a good one and will commend itself to any surgeon, whether this class of work comes much his way or not.

IMMUNITY.

THE translation of CITRON'S *Immunity*[5] is not by any means an unmitigated success. Whatever may be the claims of the translator as an authority on the subject, he certainly does not have much claim to be regarded as a writer of good English. The text bristles with grammatical eccentricities and expressions which are not current on either side of the Atlantic. In addition, punctuation marks are scattered about with a delightful inconsequence, which gives many a sentence a wonderful and sometimes unintelligible appearance. It is, indeed, to be regretted that the translator did not seek the assistance of some one who might have corrected these vagaries, for otherwise the volume has much to commend it. It is essentially a book for the beginner in immunity, and it does not profess to give an exhaustive treatment of the subject. Its aim is practice rather than theory, though, at the same time, care is taken to explain as far as possible the meaning and object of the various processes, for, as Citron remarks, the growing tendency to teach diagnostic immunity reactions without a general knowledge of the fundamental processes on which they depend is much to be deplored. The author also, and very rightly so, insists on the exceedingly great importance of control tests, a point which is so apt to be missed or even ignored by beginners. The general teaching, in fact, is sound, and although we might take exception to the ultra-German views which pervade the book, and which the translator has not toned down to any extent, we can recommend it as a thoroughly accurate exposition of the subject. The method of treatment is consistently critical, and if the author shows himself biassed in regard to certain particulars, it is hardly more than one should expect, in view of the present state of opinion affecting many of the problems of immunity. A number of illustrations accompany the text, most of which are fairly serviceable.

[4] *Diseases of the Anus, Rectum, and Sigmoid.* For the use of students and general practitioners. By Samuel T. Earle M.D., Professor Emeritus of Diseases of the Rectum in the Baltimore Medical College, etc. Philadelphia and London: J. P. Lippincott Company. 1911. (Roy. 8vo, pp. 495; illus. 152. 21s.)

[5] *Immunity: Methods of Diagnosis and Therapy and their Practical Application.* By Dr. Julius Citron. Translated by A. L. Garbat, M.D. Philadelphia: P. Blakiston's Son and Co. 1912. (Med. 8vo, pp. 220; illus. 27, plates 2, charts 8. $3.00 net.)

SCHOOL DENTAL CLINICS.

THE book on *School Dental Clinics: their Foundation and Management*,[6] by Mr. C. E. WALLIS, is written in a businesslike manner that will appeal to lay and professional minds alike; a study of its pages should do much to convince educational authorities that the benefits to be derived from school dental treatment are out of all proportion to the cost incurred. The dangers of oral sepsis and its relation to the incidence of many conditions of disease, notably tuberculosis, are briefly but clearly set out, and attention is very rightly drawn to the fact that the establishment of dental clinics would be a most useful adjunct to the battle against tuberculous disease. There will be found some tactful hints as to the best methods of dealing with apathetic or aggrieved parents, and valuable suggestions for encouraging children to take an interest in the care of their teeth and for overcoming the very natural dread with which they regard the dentist's chair. The chapters dealing with equipment and the best method of working treatment centres are detailed and practical, and it is interesting to note that inquiries prosecuted by the author seem to show that the moneys at present allocated for the maintenance and equipment of clinics of this kind are sufficient for the purpose if reasonable economy and proper management are exercised. An interesting account is given of the system that prevails in Germany, and full information concerning the various dental clinics that have been established in this country, illustrated by some excellent photographs. This useful little book deserves to be widely read, and can serve a twofold purpose—first, by lightening the labours and preventing the natural mistakes of those who are about to establish, or who have already established, a dental clinic, for they will find ready to hand a concise treatise dealing with every detail of establishment, maintenance, working, and equipment; and, secondly, by demonstrating to a wider circle of readers that the dangerous conditions which arise from oral sepsis can be prevented at a comparatively small cost, and so enlist their sympathy and active interest in the promotion of further clinics.

NOTES ON BOOKS.

DR. ALBAN KÖHLER'S work on the Roentgen rays in surgery[7] is the first volume of Heinz Bauer's library dealing with the technique and application of physical science to medicine. The author claims to be particularly well qualified to write such a work, as he was formerly in surgical practice, and therefore well acquainted with the need of surgery for the help of Roentgenology. His effort is to present to the surgical world a concise statement, with illustrations, of the field opened up for surgery by the discovery of the Roentgen rays. There are chapters on the history of the Roentgen rays, technicalities, the discovery of foreign bodies, the demonstration of fractures and dislocations, diseases of bone, abscesses at roots of teeth, and calcareous and tuberculous deposits in the lungs. The illustrations are perhaps the most telling part of the book. The author presents four plates, each of which contains on an average fifteen reduced photographs reproduced with remarkable clearness. They are exceptionally good specimens of skiagraphy; some are, indeed, suspiciously clear, and have a "touched-up" look, but surgeons and radiographers will find in this little book some very interesting specimens of good Roentgen-ray work.

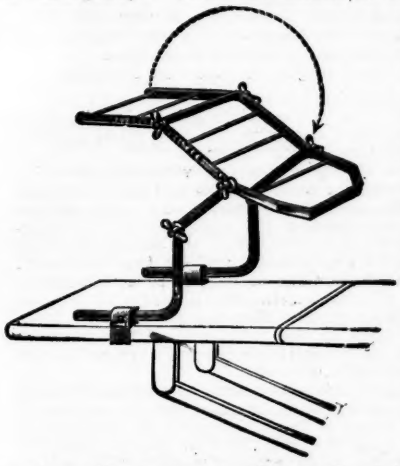
[6] *School Dental Clinics: their Foundation and Management.* By C. E. Wallis, M.R.C.S., L.R.C.P., L.D.S. London: Claudius Ash, Sons, and Co., Ltd. 1912. (Roy. 8vo, pp. 80; 16 illustrations. Price 3s. 6d. net.)

[7] *Das Röntgenverfahren in der Chirurgie.* Von Dr. Alban Köhler, Specialarzt für Röntgenologie in Wiesbaden. Berlin: Hermann Meusser. 1911. (Roy. 8vo, pp. 79; Tfn. 4; figs. 17. Preis M. 5.75.)

MEDICAL AND SURGICAL APPLIANCES.

Anaesthetist's Screen.

Dr. D. Dougal (Manchester) writes: The accompanying illustration shows a new screen which I have devised for use in abdominal gynaecological operations, and which is now being used at St. Mary's Hospital, Manchester. It consists of a horizontal platform, connected below to two vertical supports. The platform is composed of three sections jointed together, the joints controlled by thumb-screws at each side. The sections can thus be fixed at any angle to each other, and at the same time the whole platform may be raised or lowered by means of a joint on each of the vertical supports. Each of these supports is connected below to a horizontal rod running in a socket, and this can be fixed in any position by another thumb-screw. By this means the platform is moved backwards or forwards, according to the size of the patient. The whole apparatus is made of light metal, and easily fitted to any operating table. It may also be quickly removed in case of emergency. When the screen is in use the anterior section is lowered till in contact with the patient's chest. The remaining sections are then adjusted according to the inclination of the table or the convenience of operator and anaesthetist. With the patient in the Trendelenburg position, it is unnecessary to use all three sections, in which case the posterior one is folded forwards (in the direction of the arrow in the diagram) on to the section in front. The sterile cloths are then spread over the platform which now forms a horizontal shelf for the surgeon's instruments, thus preventing their slipping off the table, as so frequently happens in these cases. In addition, the anaesthetist is kept well out of the operation area, and has plenty of space in which to carry out his manipulations without being encroached upon by the operator. The screen, which has been made for me by Messrs. Mayer and Meltzer, has been found specially suitable in those cases where the Trendelenburg position is used. Here the surgeon is not always able to maintain a rigid asepsis within his field of operation, and at the same time the anaesthetist is considerably hampered in his work by instruments and sterile cloths slipping on to the patient's face.



MEDICINAL AND DIETETIC PREPARATIONS.

Maltesco.

We have recently examined a mixture of malt extract and cod-liver oil with peptones and albumoses prepared from beef; this preparation is put forward by the Nutresco Company (Maritzburg, Natal) under the name "Maltesco No. 3." It is a thick mixture, bearing a general resemblance to the usual mixtures of malt extract and cod-liver oil, but with a slight meaty flavour. Analysis showed it to contain 11.4 per cent. (by weight) of the oil, and the very high proportion of 21.6 per cent. of protein; reducing sugars calculated as maltose were 40.3 per cent. It is evident that the food value of such a product is high, and since it contains about four times as much albuminoid substance as an ordinary malt extract with cod-liver oil, it should prove valuable as a nutrient. Our results did not confirm the claim made that the diastatic power is high, very little digestive effect on starch being shown; but the preparation would hardly be taken with starchy foods in the way that a plain malt extract is sometimes taken, and diastatic power is therefore of little importance.

On November 7th Dr. Manfield was presented by the residents in Shenstone and district with an oak instrument cabinet and a purse of money on the occasion of his marriage. In making the presentation many remarks were made appreciative of Dr. Manfield's services to the village and neighbourhood.

THE PARLIAMENTARY COMMITTEE ON PROPRIETARY MEDICINES.

Vendors of Proprietary Medicines.

The first witnesses on behalf of the vendors of proprietary medicines were heard by the Committee on November 6th.

Mr. John Charles Umney, managing director of Messrs. Wright, Layman and Umney, Ltd., proprietor's of Wright's Coal-tar Soap and other proprietary articles, was the first witness. Mr. Umney stated that he was the first chairman of the Proprietary Articles Section of the London Chamber of Commerce, and the present chairman of the Chemical and Drug Section of the Chamber. He was vice-president of the Proprietary Articles Trade Association, a pharmaceutic chemist by examination, and a Fellow of the Society of Public Analysts.

The Chairman mentioned that as the preparations of the witness's firm had not been mentioned at all before the Committee, it would not be necessary for him to give evidence in regard to them.

Mr. Umney stated that he was not aware of any proprietary medicine attaining more than a transient commercial success that did not possess distinct medicinal value; he excluded illicit preparations. The kind of frauds that had been attacked in *Truth* were of a totally distinct class from household proprietary remedies. They related largely to mechanical devices and to cures which were obviously fraudulent. One ground for his statement as to the failure of useless remedies was that many of the failures in the advertising agency trade were largely due to undertaking undue risks on this class of business. He could state of his own knowledge that many of the analyses set out in *Secret Remedies* were inaccurate. In the analysis of Woodward's Gripe Water on p. 149 of *More Secret Remedies*, a most important constituent was omitted, and those given were inaccurate. In this case the missing ingredient was difficult to find by chemical analysis, but he was rather surprised that it had been omitted. The witness intimated that he was prepared to give the correct formulae in the cases in which he alleged that the particulars given in *Secret Remedies* were inaccurate, providing he had the permission of the proprietors. If the preparations were submitted to the Government Analyst, he certainly thought complete results would be obtained. Asked for other examples in which he charged inaccurate analyses, witness mentioned Doan's Dinner Pills, on page 69 of *Secret Remedies*. In this case, he said, a most important constituent had been omitted. It was discoverable, but not easily so by chemical analysis. The witness also alleged that the ingredients given of Keating's Cough Lozenges, on page 18, were inaccurate.

In reply to a suggestion by Dr. Chapple that the witness should be asked to try and get permission from the various proprietors to supply the correct formulae, the Chairman intimated that the Committee should discuss this in private before asking the witness to do so.

The witness went on to say that from his own knowledge and experience the greatest care was taken by a large number of the leading proprietors to ensure the very highest efficiency in the drugs they purchased, and to ensure accuracy in such ingredients as admitted of standardization by chemical analysis. He added that four out of five of the preparations mentioned in *Secret Remedies* were unknown to him. The publication of formulae, as suggested by most of the medical witnesses, would be of very little advantage to those whom ostensibly the suggestion was intended to protect. Grave harm would be inflicted upon those proprietors who had spent large sums of money in building up a demand for a legitimate proprietary medicine. The publication of such formulae would undoubtedly lead to the imitation of the particular preparation. Such imitations, as a rule, would consist of goods of a lower grade, which would be sold in large measure as a result of the advertising of the original firm. That would obviously not induce less self-medication, but merely change the maker from the present proprietor with a reputation to a large number of competitors, and if it led to reduction in price, that from the self-medication point of view would not be an advantage. Further, the publication on the label of the formula of a preparation containing a dangerous drug, and one liable to induce drug habits, would be of

considerable danger, in that it would be a clear guide as to the amount of the particular objectionable drug contained, and assist the purchaser to know how it could be obtained and also the limit to which the drug could be taken to get the desired effect. He had never heard that any complaint had been made that a remedy which did publish its formula did not contain any or all of the constituents stated on the formula; any offences of that kind must be very rare, or one would have heard of them, and no drastic alteration of the law was necessary to meet that suggestion. The witness gave a number of instances in which proprietary medicines in various forms were the basis of medicines contained in the *British Pharmacopoeia* and the *Pharmaceutical Codex*.

With regard to the sale of acetanilide, antipyrin, and phenacetin in the form of headache powders, from his observation and trading he was able to state that the amount of these chemicals sold through pharmacists in the form of tablets and powders was very considerable, and probably exceeded that sold in the form of proprietary medicines. The Pharmaceutical Society had power to extend the schedule of the Poisons Act, with the consent of the Privy Council, so that the sale of really dangerous drugs could be limited.

As to the objection taken in some quarters to the presence of alcohol in proprietary medicines, the witness said there were very few proprietary medicines containing more alcohol than was necessary for strictly preservative purposes. The proportion of alcohol present did not as a rule exceed that in the prescriptions of medical men prescribed under probably similar conditions to those under which the proprietary medicines would be taken. With regard to medicated wines, objection was taken that in the majority of instances the public was ignorant of the fact that the preparations contained alcohol. That he held to be quite an erroneous assumption, in that the wines were only to be obtained from persons licensed to sell wines, and they were as a rule more expensive than the similar "basic" wines, and most of them stated, in fact, that they were wines. He was confident that the present fiscal regulations and restrictions were a sufficient safeguard to the public. The witness considered that the censorship of advertisements would be impracticable and also extremely difficult owing to the natural variations of opinion from time to time as to the value of a particular preparation. A newly-introduced drug, which to-day might be held to be a quack remedy, might in five years' time find a place in the *Pharmacopoeia*. He could vouch from his own personal experience of difficulties which had arisen in connexion with the work of the Customs authorities in the Commonwealth of Australia, while their censorship of advertising had really effected little beyond the change of a few adjectives. As an instance he mentioned that the Customs authorities of Australia asked his firm to remove from the wrapper of Wright's Coal-tar Soap a quotation, "The only true antiseptic soap," from the BRITISH MEDICAL JOURNAL of forty years ago. The authorities gave as a reason that, although the statement might have been true forty years ago, it could hardly be true to-day.

The Proprietary Articles Section of the London Chamber of Commerce offered certain criticisms of the suggestions of the British Medical Association with regard to legislative steps necessary. The section considered that the publication on each package of the name and quantity of the ingredients would afford no real assistance or protection to the public against fraudulent articles, and would be a most unfair interference with valuable proprietary rights. The suggestion that the labels should be made to constitute a warranty and that false trade descriptions should be made an offence was difficult to deal with on account of the generality of the language employed. A label which contained false statements under existing law might form the foundation of civil or criminal proceedings. The suggestion that the provisions of Section 6 of the Food and Drugs Act should apply to proprietary medicines the members of the Chamber considered impracticable. Large powers were vested in the Director of Public Prosecutions, in the police, the Board of Trade, the Board of Customs and Excise, and in the Pharmaceutical Society. No objection would be taken by the section to the enlargement of the scope of the Indecent Advertisements Act to include advertisements in newspapers and exposure in shop windows. Mr. Umney presented the following suggestions on behalf of the section:

Any proposed amendment of the law which would compel owners of proprietary articles to expose trade secrets or declare ingredients except in regard to poisons would be strongly opposed. The evidence had shown that most of the alleged abuses arose in connexion with the sale of abortifacients and anti-conception remedies. The members of the section desired to dissociate themselves entirely from this class of business, and considered that as regards these remedies there might be stringent restrictions with regard to newspaper and circular advertising. As regards some of these, the Offences Against the Persons Act, 1861, already provided remedies at law. As regards female ailments, the public advertisement of remedies for these should be in simple language, such as not to imply that the medicine was recommended for improper purposes, and the statement might appear prominently on the label that where suppressed menses were due to pregnancy the preparation would have no effect. The public advertisement of medicines claiming to cure such diseases as cancer, rupture, locomotor ataxy, diabetes, syphilis, and so on, might be made illegal, and no statement should be made on the label that the preparation would cure such diseases.

As regards other proprietary medicines, it was felt very strongly that no case had been made out for any interference with the large and reputable trade in these medicines.

Any amending legislation might be based on the following lines:

1 Every manufacturer or representative in this Kingdom, before offering a proprietary medicine for sale, must procure from the Excise a certificate of registration.

2. Such manufacturer or representative, when applying for the certificate of registration, shall furnish the following particulars: (*a*) a list of the medicines proposed to be made or imported; (*b*) the principal address of the manufacturer or representative in this country; (*c*) for the use of the Inland Revenue Department the name of any poisons, and—if the maximum dose recommended shall exceed the average or mean dose mentioned in the *British Pharmacopoeia*—the quantity of poisons in such medicines shall be given. The department that takes the registration shall send to the Secretary of the Pharmaceutical Society a copy of any certificate issued in respect of any proprietary medicine containing poison.

3. Every package of medicine issued shall contain the number of the certificate. No vendor shall indicate that the certificate in any way affects the merit of the article, and no reference to such certificate other than that provided by statute shall be made on any label, circular, or advertising matter. The department to have the power to refuse or cancel the certificate for the sale of medicine sold contrary to the law or that does not correspond to the certificate of registration. Any manufacturer who may be refused a certificate or have it cancelled to be entitled to a full statement of the reasons and to have a right of appeal to the courts.

4. Proper penalties to be imposed on any manufacturer or dealer knowingly selling proprietary medicines contrary to the law.

In reply to questions by the Chairman, the witness stated that any firm of proprietary medicine manufacturers might be elected a membership of the London Chamber of Commerce; it was no part of the functions of the section to exercise control over the medicines sold.

Mr. Cawley asked why proprietors of remedies who complained that inaccurate formulae had appeared in *Secret Remedies* had not brought actions for libel against the British Medical Association. The witness replied that the proprietors would have to state the true formulae in order to prove their case. Mr. Cawley suggested that if they definitely proved that an important ingredient was omitted it would be sufficient to obtain a verdict, and, asked whether a remedy would not be helped in the public estimation if such an action were brought in the courts and the proprietors won. The witness replied that he might as well begin an action against the General Medical Council for including a formula in its *Pharmacopoeia* in imitation of his own.

Mr. Cawley: You do not believe in the advertising value of the law courts?

The Witness: There are two sides to the account. I think that proprietors of reputable remedies do not want to fight for the benefit of owners of four-fifths of the remedies mentioned in the book which have hardly been heard of.

Further questions to this witness by members of the Committee were postponed to the next sitting.

Mr. C. H. Ratcliffe, joint managing director of Messrs. A. J. White, Ltd., manufacturers of Mother Seigel's Curative Syrup, was the next witness. He stated that this preparation did not contain any scheduled poison, but it had eleven different vegetable extracts not mentioned in the analysis in *Secret Remedies*. This analysis, witness

stated, was almost grotesque in its incompleteness. He did not wish to name the vegetable extracts the syrup contained, but he claimed that they all possessed distinct therapeutical qualities. The relation of aloes to the group of extracts in this preparation was as 25 to 181, which he thought sufficiently demonstrated the inaccuracy of the analysis in *Secret Remedies*. The witness was opposed to the suggestion that the formula or the active ingredients should be stated on the label of a proprietary medicine, and stated that the publication of particulars in *Secret Remedies* had led to imitation and interference with the trade of his company. He also claimed that proprietary medicines, on the whole, contained drugs of better quality than those dispensed by medical men to their poorer patients. In this connexion he referred the Committee to Dr. Hart's book, *How to Cut the Drug Bill*. His experience was that the censorship of advertisements in Australia had been futile.

The Chairman: On the question of extravagant claims, you claim that Seigel's Syrup is a cure for dyspepsia and liver complaints. Is that accurate?

The Witness: In the proper acceptance of the word "cure," yes. In the United States we have had to change the word "cure" to "remedy."

The Chairman: Is it true that Seigel's Syrup is a purely vegetable compound?

The Witness: The position with regard to hydrochloric acid in minute quantities is that it is put in so that it will maintain the vegetable extracts in a state of fine division and so make possible the maximum therapeutic effect. In reply to further questions, the witness stated that he was not aware that Seigel's Syrup was prohibited in Germany except on the prescription of a doctor.

THE MENTAL DEFICIENCY BILL.

When Parliament rose in August the Standing Committee to which this bill had been referred had passed the first ten lines of the first clause.

On reassembling in October there were 27 pages of amendments to the remaining 67 clauses of the bill. The bulk of these, however, are drafting and non-contentious amendments or consequential on the fundamental changes proposed by the Government, and adopted by the Committee, in deference to adverse criticism of the original proposals in the bill in regard to the constitution of the central authority.

Board of Control.

It will be remembered that the Government had agreed in the summer to deal first of all with Clauses 1 to 5, which set up the central authority, and then to pass on to Clause 17, which defines the persons who are regarded as mentally defective, within the meaning of the Act, and the circumstances which are to render a mentally defective person subject to be dealt with under the Act.

As far as the central authority is concerned, the objections to the original proposals of the bill, to set up under the Home Office a totally new body of Commissioners, separate from, and in addition to, the Lunacy Commissioners, were set forth in these columns on the introduction of the bill, and it is a matter of satisfaction that these objections, which were generally held by the profession, and particularly by that section of it which is specially concerned with lunacy administration, have been for the most part removed by the Government amendments.

The meetings of the Standing Committee during the first few weeks of the autumn session have thus been devoted to such questions as the number of qualifications of the Commissioners, their mode of appointment, tenure of office, salaries and duties.

The following are the principal points settled by the Committee in regard to these matters:

The new body is to be known as the Board of Control. The paid Commissioners are to be twelve in number if necessary, but at present only eleven will be appointed. The four legal Commissioners, who may be practising barristers or solicitors, are to be appointed by the Lord Chancellor, the rest by the Home Secretary; thus the main responsibility is transferred to the Home Office. One of the three unpaid Commissioners and one of the paid Commissioners are to be women. It is not required that the three additional Commissioners to be appointed, including the paid woman Commissioner, shall be medical practitioners.

So far as the profession is concerned, the addition to the numbers of the Commissioners and the single Board of Control will possibly meet with approval, and there appears to be nothing in other details that calls for special mention from this point of view.

It was not till the last day of October, after disposing of Clauses 1 and 2, that the Committee was able to turn its attention to Clause 17, which, read together with Clause 25, is undoubtedly the crucial clause of the bill.

Repeal of the Idiots Act, 1886.

At the outset, it is important to bear in mind that, before the Committee rose in August, Mr. McKenna announced the intention of the Government to insert a clause repealing the Idiots Act, 1886. The original draft of the bill expressly provided that nothing in this Act should affect any power exercisable with respect to idiots and imbeciles by the Commissioners in Lunacy or other persons under the Idiots Act; that is to say, some of these patients were to remain under the Commissioners in Lunacy, and some would come under the new Commissioners proposed by the bill. When it was decided to entrust the control of defectives of all kinds to one and the same central authority, it was clear that that authority would be dealing with idiots and imbeciles under three separate statutes, namely, the Idiots Act, the Lunacy Act, and the present bill. This would have led to overlapping and confusion in administration, and the Idiots Act had to go.

This decision, though recognized as inevitable, has been met with regret on the part of those voluntary institutions which have for many years carried on good work under its provisions. It was, perhaps, an anomalous and somewhat crude piece of draftsmanship; but its provisions were extremely simple, and on the whole worked very satisfactorily. Had the term "mental defective" been used throughout its title and provisions as was originally intended, and had monetary powers, such as are granted in the present bill, been added to it, it would probably have sufficiently met the needs of the case, and have rendered unnecessary the present demand for further legislation. As it is, from the very first defectives of all degrees have been received and trained in the institutions registered under its provisions, although the terms of the certificate militate somewhat against this, and there was no provision for the supply of adequate accommodation by local authorities. In view of the repeal of this Act it is very important that clauses should be introduced in the present bill to cover the hiatus thus created without undue disturbance to existing institutions, and in particular to provide against large numbers of idiots and imbeciles falling outside the bill, by reason of the fact that in most cases they do nothing to make themselves subject to be dealt with under Clause 17 (1) as now amended. The Home Secretary has expressed his intention to frame clauses dealing with this position of affairs. In this relation it may be well to call to mind the statement recently made by the Home Secretary that the Government does not propose that any person should be compulsorily detained in a home unless such person for some reason or other has already come in contact with the law or is being dealt with by the law.

A proposal was made by Mr. Dickinson that idiots and imbeciles should *ipso facto* be subject to be dealt with under the Act, but this was rejected; it is therefore important that special provisions dealing with them should be framed.

The passage of Clause 17 was undoubtedly rendered smoother by the announcement made by the Home Secretary that he would move the omission of Subclause (1) (*e*), which made those defectives subject to be dealt with in whose case it is desirable in the interests of the community that they should be deprived of the opportunity of procreating children; and also of Subclause (1) (*f*), which empowered the Secretary of State to specify other circumstances which should make a defective subject to be dealt with under this Act.

The opinion of experts is that medical knowledge is not sufficiently advanced to afford definite guidance by which

the possible abuses that might occur under such a provision as the former could be obviated, and it is without surprise or regret that the profession views the disappearance of this proposal.

With regard to the latter, it appears to be unwise to leave such large powers to the Secretary of State without reference to Parliament, and in its place a subclause has been adopted by the Committee which empowers the Board of Control to specify in regulations circumstances which make persons injurious or dangerous to themselves or to the community, and so make them subject to be dealt with.

Any objection there might be to this has been removed by a further amendment proposed by Mr. McKenna to the effect that all regulations must be laid on the tables of both Houses of Parliament for thirty days before becoming valid.

Most of the hostile criticism directed against the bill has been in regard to these provisions, and though the opponents in Committee are not very numerous, they have found considerable support in the country, and their attack will be deprived of much of its force when the bill again comes before the full House, by the withdrawal of these paragraphs.

Children.

The very important question of the position of children under the Act came up on November 5th, and a statement was made by the Home Secretary of the general policy of the Government, which will be received with hearty approval by those who are most conversant with this difficult problem.

In the first place the Defective and Epileptic Children Act, 1899, is to be made compulsory. Hitherto its application has mainly been confined to a few urban districts. Moreover, owing to the insufficient provision for those children who were incapable of deriving benefit from mere schoolroom methods, these schools tended to be clogged with a class of children for whom they were not quite appropriate. The proper function of such schools is as a sorting ground or as a temporary provision to assist some children who are only backward and need temporary special assistance or as the best method of educating a certain grade of the feeble-minded throughout their school life, with the hope and prospect of preparing them sufficiently to take their place in the world.

These schools cost the ratepayer more for each child than the ordinary schools and it is highly desirable that no child should remain permanently in them who is not likely to derive the intended benefit from them. Any child removed to a home under the bill will still be a charge on the education authority. This will prevent any financial inducement to the authority to send children to homes without good cause; the education authority will have power to transfer a child to a home without the consent of the parents. Presumably this arrangement will only endure so long as the child is of school age, after which the control and responsibility of the education authority should cease.

The actual clauses carrying these proposals into effect have not yet been framed; at present all that has been passed in this respect is Subclause (*d*) of Clause 17, making all children discharged from a special school or class subject to be dealt with under the Act.

It is understood that in order to make the Defective and Epileptic Children Act compulsory, a separate bill will be required. Presumably, when this is brought in, the provision for homes under that Act will be modified or abolished, as they will be rendered superfluous by the present bill.

Definition of "Mentally Defective."

As regards the definitions of defectives in 17 (2), one of the changes obviously desirable was to make them more readily applicable to children, in the original form the definition is ambiguous in this respect, being based on the capacity or not to earn a living.

Of the various amendments proposed to the definitions of "imbecile" and "feeble-minded," those standing in the name of the Home Secretary seem on the whole to be the most satisfactory. The definitions thus modified read as follows:

(*b*) Imbeciles; that is persons who are capable of guarding themselves against common physical dangers, but who by reason of mental defect existing from birth or from an early age are incapable of earning their own living, or in the case of children incapable of being taught to earn their own living.

(*c*) Feeble-minded persons; that is to say persons who may be capable of earning or being taught to earn their own living under favourable circumstances, but are incapable through mental defect existing from birth or from an early age of managing themselves or their affairs except under suitable supervision or, in the case of children, of receiving benefit from the instruction in the ordinary public elementary schools.

It will be seen that this omits the phrases "competing on equal terms with their normal fellows" and "managing their affairs with ordinary prudence" which were certainly equivocal and calculated to raise a smile in the House of Commons. The form now suggested seems workable, not open to serious criticism, and as good a subdivision as the nature of the material to be classified permits.

All the amendments put down to these forms are open to criticism for one reason or another, and are only attempts to modify the form of words. The basis of the form now adopted is that recommended by the Royal College of Physicians to the Royal Commission.

Moral Imbeciles.

In regard to moral imbeciles important amendments are proposed by Mr. Dickinson, making it necessary that the condition should be a permanent mental defect and that the vicious or criminal propensities should be habitual. This is important, as it is undesirable to certify a child as a moral imbecile who, as sometimes happens, is merely passing through a phase of this kind.

"Mentally Infirm Persons."

Coming to "mentally infirm persons"—the last group of persons to be regarded as defectives within the meaning of the Act—there is a strong feeling that, however desirable it may be that some steps should be taken to relieve the asylums of the growing burden of these old people who could very well be cared for at less expense elsewhere, nevertheless, this class is both in its nature and in the nature of the treatment required, quite different from the other classes of defectives defined by the bill. It is a group of persons that can and ought to be dealt with under the Lunacy Acts in such a way as to meet the objections referred to above. Moreover, many members of this class are adequately provided for under the Poor Law, and it seems an unfortunate proposal to introduce this group into a measure which in its origin and its actual provisions is designed for a totally different set of persons.

The definition itself is much open to criticism. Mental infirmity cannot be said to arise from the decay of the faculties; this is simply another way of expressing the same fact.

If this subclause is added to the bill, there is little doubt that there will be a widespread tendency to discharge mentally infirm persons from asylums and flood the new institutions that are to be established under the Act, or use up money for purposes quite alien to the main purposes of the measure.

Notification of Cases.

Clause 18 deals with notification. In its present form it includes all defectives. The duty is imposed upon overseers, relieving officers, district medical officers, medical officers of health, and constables. An amendment is now proposed to add any registered medical practitioner who has seen or examined any person whom he has reason to believe is defective. This appears to be an intrusion into the privacy of the home life and a further invasion of professional secrecy, which is hardly called for in the interests of the public or the individual.

If there is to be any notification at all it should certainly be limited to those who are deemed subject to be dealt with under the Act, and the private medical practitioner should not be called upon to report cases coming to his knowledge in the course of his practice. Nothing would be more calculated to cause parents to refrain from seeking medical advice in regard to children who are backward or who might be supposed to be defective.

The other provisions of the Act will give all the statistical and other information as to individuals that can reasonably be required.

Voluntary Boarders.

There remains one other important problem awaiting solution, and that is how and how far provision should be made for allowing persons to become voluntary inmates of houses or institutions under the Act.

There is a strong feeling in favour of something being done in this direction on the part of members of the Standing Committee, based doubtless on the desire to mitigate in some degree the compulsory aspect of the bill. There is also the precedent of similar provision in the Lunacy Acts.

It is certainly very desirable that the voluntary principle should obtain recognition, as otherwise there will be reluctance on the part of large sections of the public to take advantage of the care and management available for defectives, if certification is to be necessary in every case. On the other hand, it is necessary that such limits should be imposed on the employment of this method as not to reduce it to an absurdity, or to defeat the principle of compulsion aimed at in regard to those who have become subject to be dealt with under the Act by reason of having come in contact with the ordinary law in one of the ways specified. Thus it would be unreasonable to extend this liberty of judgement to idiots, imbeciles, moral imbeciles, or senile dements.

This leaves the feeble-minded only to come within the purview of such a clause, and of these it should only be applicable in the case of those who are not subject to be dealt with under the Act.

This will readily be conceded when it is considered that the voluntary status must be accompanied by the right of the individual to discharge himself. The extension of this right to those who have become subject to the Act would tend to defeat its object.

A convenient extension of the principle might be made in regard to all defectives under the age of 21 in regard to whom parents or guardians might be empowered to place them in homes without certification, but subject to notification to the Commissioners, which would be required in the case of all voluntary boarders.

If such a clause were inserted and if the new clauses, already foreshadowed, provide for idiots, imbeciles, and moral imbeciles of all ages more or less on the lines of the present Idiots Act, then Clause 25 might be limited to feeble-minded defectives under 21 who are subject to be dealt with under the Act, but in whose case it is not desired to apply the full judicial procedure by order—that is, to allow them to be received on a simple medical certificate as outlined in the clause.

Every class of case will thus be provided for in such a way as to cause the least possible offence, and yet without avoiding official supervision and without interfering unduly with the liberty of the individual.

Proposals somewhat on these lines have been made, but they seem to require considerable amendment to free them from objection.

Another proposal has been put forward for the provision of receiving houses or wards. This idea is borrowed from the corresponding plan in regard to lunacy work, in which it has received the strong approval of the medical profession. It was embodied in the proposals of the Royal Commission, which included lunatics in its scope. It is very doubtful, however, whether it is needed or applicable to the very different type of case contemplated by this bill, and it would seem likely to introduce unnecessary complications and expense.

On the whole the Government must be congratulated on the energy with which it is pushing forward the measure, and on the great improvements it has embodied in it. These have tended to consolidate instructed opinion in the House, and to render more easy its passage into law.

A national association for the stamping out of epidemic poliomyelitis has been founded at Stockholm.

We learn from the *London University Gazette* that the second edition of the *Guide to the Libraries of London*, by Reginald A. Rye, Goldsmiths' Librarian, has been published. It has been very considerably enlarged, and is illustrated by sixteen photographic plates. A table of the hours during which the libraries are open has been added. Copies may be obtained at 2s. 6d. net, or 2s. 10d. post free, on application at the university, or they may be ordered through Messrs. Hodder and Stoughton and other booksellers.

THE MOTOR SHOW.

CARS FOR MEDICAL MEN.

By H. Massac Buist.

The Motor Show, which opened at Olympia, Kensington, a week ago, has evidently evoked wider interest than any previous one of the series, which now totals eleven. The outstanding novelties and general tendencies of motor-car construction revealed at the show were dealt with in an article published in the British Medical Journal last week, and as the exhibition closes to-night it remains to deal in more particular detail with the new points embodied in a few typical cars suitable for the service of the medical man. It may be noted, as a general observation, that wellnigh all types can be obtained in what are called Colonial models—as instance the 15-h.p. Napier—which nowadays consist chiefly in having stronger axles, steering connexions and springs, lower gear ratios to accommodate larger wheels and high ground clearance. The matter of coachwork for cars for medical men overseas has not yet progressed to any great extent—that is to say, the general practice remains to paint and varnish the body in the ordinary way, and we note that in the majority of our overseas possessions paint and varnish do not stand the rigours and rapid changes of the climate. The only thing that will come out successful under that heading is the metal sheet, steel type of body painted and stove-enamelled, bicycle fashion. That we have in several American types, and it is plain from the enterprise of the Birmingham Small Arms Company, for example, that we shall not be lacking it as a more or less general British practice in the course of a very few years.

Novel Middle-Powered Single Sleeve Argyll.

The Argyll single sleeve valve engine, with elliptical movement, was one of the novelties of last year's show, when, it will be remembered, some doubt seemed to exist as to the validity of the patents under which it was made. Not only has that since been absolutely settled, with the result that Argylls have emerged triumphantly from the Law Courts, but also in the hands of the public the system has been proved practical. It was, however, available only in a large nominal 25 h.p. machine, whereas this year the Argyll Company, while still retaining its 12-h.p. poppet-valve engined car, brings forward a four-guinea-tax 80-mm. cylinder bore by 130-mm. piston travel single sleeve valve engine in which it has been possible to do away with the junk ring on the head, thereby reducing friction and achieving a considerable gain of simplicity, for hitherto it had been deemed essential to equip sleeve valve engines with this device. The new chassis is, therefore, a middle-powered machine, though, like most of the 12–16 Treasury rating cars, it may be confidently looked to to give double its nominal rating at maximum — that is to say, 30-h.p.—so that here is a machine that will accommodate strongly-built coachwork. The live axle-drive is of the overhead worm system; another feature is the diagonal mode that enables all brakes to act at once, whether controlled by hand or foot, according as may be convenient to the driver at the given moment.

Worm-driven Armstrong-Whitworth Types.

The cutting down of the maximum space allotted to any one stand has been the prime cause in preventing the Armstrong-Whitworth firm showing separate chassis this year, all the cars being mounted with bodies of various types. There are altogether four models, the largest being a 30–50-h.p. six-cylinder vehicle that is supplied with bevel or worm drive at option, whereas the other three four-cylinder models are all equipped with the worm drive. One of these is a four-guinea-tax 80 mm. by 135 mm. piston travel vehicle of 15–20 nominal rating, while another type has a bore measurement 5 mm. larger, and a fourth model has engine measurements of 100 by 120 mm. Thus all purses are catered for. In the general design little change has been made, but there are some interesting details about the complete vehicle, as instance the manner in which the bonnet of the six-cylinder chassis merges into the special type of scuttle dash forming an integral part with the unbroken limousine-landaulette body line, while the latest fashion is followed in providing windows

that drop quite out of sight in their frames. Some new ideas in bodywork for smaller covered cars are furnished in the 17-h.p. "Elswick" landaulette, carried out in grey with upper parts of black, the upholstery being grey.

Two Fresh Adler Types.

The increasing popularity of the Adler cars, which is one of the three foremost German makes, and that are handled in this country by Messrs. Morgan, of Long Acre and Bond Street, is illustrated at the show by the introduction of two new four-cylinder models, both of which come under the four-guinea tax rating. The little 14 to 18-h.p. machine has 75 mm. engine bore by 120 mm. piston travel, while the chassis, rated at 15 to 25-h.p., has 80 mm. bore by 130 mm. piston travel. A feature of these vehicles is that the camshafts are driven by enclosed silent chains, while the valve action is rendered additionally quiet by a double closing movement achieved with roller levers worked by the camshaft; the valve dampers are also of original design. An excellent example of a small car for a doctor is the coupé-landaulette Morgan body on a 10-h.p. Adler chassis with a concealed dicky seat at the back and patent self-acting and balanced headpieces. By means of this, without rising from his seat, the occupant can, without effort, change the vehicle from an open to a closed type, or the other way about.

Clement-Talbot Features.

While it makes no change in its engine ratings, there has, nevertheless, been a great change in the three four-cylinder Clement-Talbot models, rated respectively at 12, at 15, and at 25-h.p. Briefly, the principles of design now embodied in these are a reproduction of those proved so eminently satisfactory on the 20-h.p. six-cylinder type. This is a vehicle which, having balance discs on the crankshafts and such-like features, is rendered extraordinarily flexible as well as free from vibration, hence, excellent as the Clement-Talbot four-cylinder cars have been in the past, there is no gainsaying that a big forward stride has been attained in applying the six-cylinder principle to them. There would not, perhaps, be much in it if the manufacturing were not of the most conscientious type, as instance the manner in which each crankshaft is balanced and in which the reciprocating parts are also tested to ensure that each shall weigh precisely the same as its fellow. The Talbot is one of those cars which combines high efficiency for engine size with uncommon durability under hard conditions of service. An examination of the improved models reveals that there has been no reduction of strength in any of their features. The 12 and the 15-h.p. types may be especially recommended to the consideration of medical men, in that the running costs of them are low.

Chenard-Walcker's Popular Powered Models.

In the new 11.9-h.p. R.A.C. four-cylinder Chenard-Walcker of 69 by 130 mm. engine measurements an enclosed silent-chain drive is used for working the magneto. This little vehicle is perhaps unusual for this class of car, too, in that the gear-box gives four speeds forward with the direct drive on the top one, and is sold with standard four-seater body. The firm, of course, markets another model of 12–18 h.p. type, which also comes under the four-guinea tax by reason of the bore measurement being 75 mm., and this may be called a long-stroke motor in that the piston travel is precisely double the length of the bore—namely, 150 mm. The firm no longer makes very high-powered vehicles, for the third type is also a four-guinea taxer, having engine measurements of 80 mm. bore by 150 mm. piston travel, which are the proportions which have proved most widely successful in competition on the part of the Sunbeam firm—for example, this year, in the Grand Prix and in the twelve and thirteen hours and thousand miles world's records irrespective of engine size on the track. These little four-guinea tax vehicles nowadays have engines proportionately much more efficient than the average cars with large motors, though the purchaser must be warned against the tendency to overtax little engines of this kind.

New Valveless Darracq Types.

The Darracq firm revealed characteristic boldness and originality when it came forward last year with a new style of engine working on the Otto cycle principle, yet employing neither poppet valves nor the sliding sleeve sort. Instead there was a cylindrical rod which turned horizontally and performed all the functions necessary in connexion with admitting gas to the cylinders and allowing the vapours to escape from them, and at the same time represented a reduction of over a hundred parts needful to the fitting of poppet valves to a four-cylinder engine. There has been a further development in the matter of construction this year in that this rotary distributor is now chain-driven from the crankshaft, with the result of further economy of power and gain of silence, as well as of simplicity. The system has answered so well, moreover, that the 22-h.p. model introduced last year is now supplemented by two small types—one of nominal 12-h.p. with a cylinder measurement of 75 mm. and a piston travel of 120, and the other a nominal 16-h.p. with 85 mm. bore by 130 mm. pistol travel, so that the smaller chassis comes under the four-guinea tax and the larger under the six-guinea tax. There has been a change in the works management of this since the last show.

The Double Cross of Lorraine.

While the chief novelty of the Lorraine-Dietrich programme, presented by Messrs. Charles Jarrott and Letts, consists of the introduction of a new high-powered model rated at 40 to 75-h.p., with the very big engine measurements of 125 mm. bore by 175 mm. piston travel, the outstanding features of the firm are still the middle-powered cars—namely, the 18 to 20-h.p. type, which is shown in chassis form, and more particularly the 12 to 16, with single landaulette coachwork in dark green and white, fine lines, black mouldings and wings. The scheme is at once subdued, substantial, and thoroughly practical. All these models are supplied at option with one or other of two angles of rake to the steering column, so that individual owners' requirements as to coachwork can be readily accommodated.

Bodywork for Town Carriage Service.

Whilst the majority of medical men need cars more or less suitable for knockabout work, there are, none the less, others who have need of luxuriously appointed town carriages. Such, therefore, will find the exhibition of the Métallurgique Company more than ordinarily interesting by reason of the quite remarkable work that is put into the Van den Plas bodies, which show the cabinetmaker's craft at its best. Moreover, these bodies are applicable to all sizes of vehicles, as instance the little 10-h.p. two-seater *de luxe* body. As to the chassis, these range from 10 to 90-h.p., the features being practically identical in all types and varying merely as to proportions, as instance the distinctive V-shaped coolers, also the spring drive for minimizing the shock in power transmission. The camshaft and magneto machine are now driven by internal silent chains, while a direct acting pump forces oil from the sump to the main bearings through the hollow crankshaft to the big ends, and so up the connecting rods to the gudgeon pins. In the little 10-h.p. model the petrol feed is by gravity from a dashboard tank, while all springs are of the semi-elliptical sort.

New Napier Features.

The Napier programme presented by Messrs. S. F. Edge consists of three six-cylinder types, and the distinctive 15-h.p. four-cylinder machine with the flywheel at the front end and other out of the ordinary features, in connexion with which it is to note that for 1913, for an additional cost of £15, this model is equipped with a four-speed gear-box with double ball-bearings under the brake drum. Rudge-Whitworth detachable wire wheels, including a spare one, are supplied at an inclusive charge for the *de luxe* chassis, as well as on the extra strong Colonial model which lately went through an extremely interesting Royal Automobile Club test to prove its cooling efficiency and so forth. On the long wheelbase chassis for service at home the final drive is by worm from under the back axle, but for the rest of the Napier models the silent bevel form is fitted. It is to be noted that the footbrake has been greatly improved as to system and enlarged as to area. This chassis has now been sufficiently long before the public to have proved the correctness of the design, which has been still further refined, and the suitability of the workmanship. The six-cylinder types have also been

remodelled, but the refinements are nearly all of an extremely detailed character, a description of which the exigencies of space do not allow.

Interesting Wolseley Developments.

The Wolseley compressed-air system of engine starter and its policy of making 4,000 cars of the 16 to 20-h.p. type having been referred to in these columns already, it remains merely to add that in the matter of design last year's models are closely followed, but many of the details are quite new. Thus, while on the six-cylinder type the Wolseley two-jet carburetter is retained, on the four-cylinder model a modified S.U. type is employed, while the lubrication system of the engine has been improved, being a combination pump-feed and splash system. Spoons are attached to the big end bearings, which dip into troughs that are kept replenished by a gear-driven oil pump, while the difficulty of smoking has been overcome in a highly ingenious manner by altering the shape of the pistons. The cam and magneto shafts are driven by silent chains. The open bodies have been redesigned to allow more comfortable seating accommodation and leg room, while folding wind screens provided with self-contained patented joints have been standardized, and the new patent type of spare wheel carrier, consisting of an aluminium dummy hub mounted on a strong bracket, which in turn is rigidly attached to the main frame, is included in the equipment. When it is desired to remove the wheel the whole of the bracket springs upwards and allows it to be withdrawn from the well in the running board.

A Charron with Hydraulic Transmission.

While there has been little occasion to make any alteration in the chassis details of the Charron cars, staged on the stand of the London Motor Garage, and ranging from the 10-h.p. four-cylinder type to the 30-h.p. six-cylinder variety, there is, nevertheless, one of the most remarkable exhibits in the show here in a 15-h.p. Charron chassis shown equipped with the long-awaited Lentz hydraulic transmission, which is furnished not in the clutch, as has been tried by various makers, but in a forward extension of the back axle casing, so that it looks like a combination gear-box device. This firm, incidentally, contracts for the service of motor carriages for private use, on inclusive terms, embracing motormen's wages, maintenance, and, in fact, everything for a fixed sum.

The David Brown Triple Bill.

The Huddersfield engineering house of David Brown and Sons shows three varieties of cars—one make the Otto-cycle engined four-cylinder 12 to 16 and 20 to 30-h.p. Dodson cars, which have been brought up to date by the furnishing of a four-speed gear-box controlled on the gate-change principle; the other the two-stroke Valveless motors, which have only six working parts each; and the third a series of Belgian cars, known as the Sava vehicles, which have been successful in the Grand Prix d'Ostende race. The new Valveless model is of 19.9-h.p. and replaces the 25-h.p. type. It is also fitted with a four-speed gear-box controlled on the gate-change principle and with a David Brown worm-driven back axle, as well as with ball bearings to all the wearing parts except the big ends. The Sava cars are made in the 14 to 18 and in the 18 to 26-h.p. type, and have the exhaust valves over the inlet, as well as worm-driven back axles.

The Studebaker Corporation.

The famous Flanders and E.M.F. cars, handled in this country by the Studebaker Corporation, are represented at this show on the stand of Messrs. H. E. Hall of Tonbridge. The Flanders is, of course, in general details, a smaller scale edition of the E.M.F., of 102 mm. bore measurement by 115 mm. piston travel, the lesser powered machine having measurements of 92 mm. by 96 mm. respectively, and being 10 in. shorter in the wheel base. The larger is constructed on more ambitious lines, and seems worth the extra cost, for after all both these American vehicles are marketed at astonishingly low prices, complete with flush-sided bodies, head lamps and acetylene generator, side and tail lamps, and tool kit.

The New Model Worm-Driven Phoenix.

There is introduced this year a new model, four-cylinder, worm-driven Phoenix car, designed on wholly fresh lines for this firm, with taper helmet type of bonnet and radiator in front of the dash. It is a little three-guinea-tax vehicle with cylinder bore measurement of 69 mm. and piston travel of 100 mm. All four cylinders are cast in one, and other details of the latest practice are followed. The nominal rating is 11.9-h.p., the valves with adjustable tappets being enclosed by a detachable cover. The minimum ground clearance is 9 in., and three forward speeds are supplied. The 12.9-h.p., two-cylinder Phoenix—that comes under the four-guinea tax—is also retained.

Accessories.

Leathern-treaded Dunlop Pneumatics and Detachable Wire Wheel.

Since the last motor show the Dunlop firm has achieved a remarkable degree of success alike with the leathern-treaded, steel-studded type of non-slipping tyre and with the detachable wire wheel which it then introduced. Both these types have had an interesting history during the last year. For example, the leathern-treaded type has been so successful that the steel-and-rubber treaded variety of non-skid has been abandoned, while the detachable wire wheel is not only adopted as a standard fitting by quite a number of British motor manufacturers, there has, besides, been set up in France a special factory to build it there under licence, with the result that a number of French motor car manufacturers are standardizing it this season. In neither device has there been any call to make a change, for both were well tried before they were placed at the service of the public, and they had, besides, been reduced to an extremely simple form. As for other Dunlop products, suffice it to say that the ordinary pneumatics have scored notable successes in holding the world's records on the track for the performance of the Sunbeam cars for twelve, thirteen hours and a thousand miles, while the minor novelties on the stand embrace a tyre pump with a gauge let into the handle so that the dial can be read without stooping.

The Avon Novelties.

The Avon India-rubber Company of Melksham, Wiltshire, not only stages the now familiar tyres with steel-studded treads, with square rubber treads, and with round rubber treads, it besides introduces two new patterns. One of these is equipped with extra heavy moulded grooves, kept flat as to the tread facing, the transverse grooves themselves being deep and narrow and the tyres designed to stand up well under pressure. The other novelty is the fashioning of the tread to consist of a number of fine flutes or ridges, designed, nevertheless, to be of the flat type. Again, in face of the advent of the cycle car, which will be attracting attention at Olympia from November 25th onwards, it is interesting to note a new combination pattern of tyre brought forward by this firm specially for this class of work. The tread of this consists of rubber bars combined with steel studs. The rubber bars are set in three rows circumferentially round the tread, the gap between each bar being filled with a steel stud.

Lancashire-built Tyres.

The special feature of the "Steelrubber" pneumatic tyre treads made by Wood-Milne, of Preston, is the combination of extremely fine steel fibres with the best Para rubber designed to produce a practically flint-proof, non-skidding, and extremely durable tread. The Egyptian cotton casing is woven in endless fashion. The range of designs for the new season include the "Griprib" tread evolved to overcome the disadvantages of the ordinary three-ribbed patterns, by reason of the fact that this new type does not stick in tram lines. Among the accessories on this stand is the new type of foot-pump fitted with automatic registering gauge.

The Pioneer Vulcanizer.

The Harvey Frost firm, which pioneered the tyre vulcanizing business alike for garages and private owners, must have occasion to feel pardonable pride at the present time when a wide variety of firms are making a big feature of vulcanizers of various sorts. The initial type, with the cumulative experience of years in the service of the public behind it, more than holds its own, for its value lies in the amount of money saved to the motorist by the proper utilization of the process. The latest types of these

vulcanizers are sold each complete in itself, and so designed that by the aid of moulds made to correspond to any design of tread, and which can be easily fitted, all patterns of tyres can be repaired. The process, of course, consists in the application to the damaged part of plastene, which eliminates the risk of over-curing, to make good the defect. By the application of a uniform and governed steam heat the freshly introduced material becomes an integral part of the tyre, ceasing to be plastic but retaining full elasticity. A wide variety of types of these vulcanizers are staged.

The exhibition closes on Saturday (November 16th).

ROYAL COMMISSION ON DIVORCE.

THE Royal Commission on Divorce and Matrimonial Causes appointed in November, 1909, has presented its report.

The Commission was instructed to inquire into the present state of the law and the administration thereof in divorce and matrimonial causes, and applications for separation orders, especially with regard to the position of the poorer classes in relation thereto, and the subject of the publication of reports of such causes and applications.

The Commissioners were unable to agree on some of the most important points raised, and there is in consequence a majority and a minority report. The Majority Report is signed by Lord Gorell (chairman, late President of the Divorce Court), Lady Frances Balfour, Mr. Thomas Burt, Lord Guthrie, Sir Frederick Treves (who was added to the Commission in June, 1910, in the place of Sir Rufus Isaacs), Judge Tindal Atkinson, Mrs. Tennant, Mr. Edgar Brierley (stipendiary magistrate, Manchester), and Mr. J. A. Spender. The Minority Report is signed by the Archbishop of York, Sir William Anson, and Sir L. T. Dibdin.

EQUALITY OF THE SEXES.

The Commissioners unanimously recommend that whatever grounds are permitted to a husband for obtaining a divorce from his wife, the same grounds should be available for the wife in a suit against her husband.

GROUNDS FOR DIVORCE.

The majority recommend that the law should be amended so as to permit of divorces being obtained on the following grounds:

1. Adultery.
2. Desertion for three years and upwards.
3. Cruelty.
4. Incurable insanity after five years' confinement.
5. Habitual drunkenness found incurable after three years from first order of separation.
6. Imprisonment under commuted death sentence.

The Commissioners in the minority do not accept these recommendations, but they concur in the recommendation that a party should be entitled to obtain, and the court have jurisdiction to pronounce, a decree of nullity in the following cases:

GROUNDS FOR NULLITY.

(i) Where the other party is of unsound mind at the time of marriage, or in a state of incipient mental unsoundness, which becomes definite within six months after marriage, of which the first party was then ignorant, provided that the suit be instituted within one year of the marriage, and there has been no marital intercourse after discovery of the defect.

(ii) Where the other party is, at the time of marriage, subject to epilepsy or to recurrent insanity, and such fact is concealed from the first party, who remains ignorant of the fact at the time of the marriage, with a similar proviso to that last mentioned.

(iii) Where the other party, at the time of the marriage, is suffering from a venereal disease in a communicable form, and the fact is not disclosed to the first party, who remains ignorant of the fact at the time of the marriage, with a similar proviso to that aforesaid.

(iv) Where a woman is found to be pregnant at the time of her marriage, her condition being due to intercourse with some man other than her husband, and such condition has not been disclosed by her to her husband, with a similar proviso to that aforesaid.

(v) Where there is wilful refusal to consummate the marriage.

Insanity as a Ground for Divorce.

With regard to the question of insanity as a ground for divorce, a point upon which the Commissioners have not been able to agree, we are indebted to Sir Frederick Treves, Bart., for the following memorandum of the evidence dealing with the question which was received by the Commissioners.

SIR FREDERICK TREVES' MEMORANDUM.

General Statistics.

It would appear that there are 150,000 registered insane persons in the United Kingdom; of this number probably some 70,000 are married. Dr. Clouston estimates that should incurable mental disease or defect become a ground for divorce, some 41,000 married persons would be affected by the change in the law. Of the 150,000 insane, about 50,000 (that is, one-third) are the subjects of incurable secondary dementia; 35,000 are classed as congenitally feeble-minded, while 20,000 are the subjects of alcoholic dementia. From Dr. Coupland's figures it appears that cases of delusional insanity represent 10 per cent. of the total number of the insane, and senile dementia 3.4 per cent. According to Dr. Clouston, there would be among the total number of 150,000 insane, only about 1,000 examples of recurrent or alternating insanity, and of this number 500 may be assumed to be married.

With regard to *recovery*, two-thirds of the inmates of asylums may be regarded as incurable. The maximum percentage of recoveries is 35; of these 35, 10 may be expected to relapse and 25 to remain sound. Dr. Coupland shows that of those who recover—

88.8	per cent.	recover	within the first 2 years.	
9.1	,,	,,	in from 3 to 5 years.	
1.6	,,	,,	,,	6 to 10 years.
0.5	,,	,,	,,	11 to 20 years.

With these figures those of Dr. Clouston closely agree. Of examples of recovery after twenty years he records only 4 instances out of 5,000 cases of recovery. Of puerperal insanity it is affirmed that 80 per cent. recover, while the rest usually become demented.

In the matter of the *ages of the married insane*, Dr. Coupland gives the following table:

	Age.	Males.	Females.
Married insane ...	Below 45	... 43.6 per cent.	... 56.0 per cent.
	Above 44	... 56.4 ,,	... 44.0 ,,

Practice of other Countries.

In the following countries insanity is a ground for divorce: Germany, Sweden, Switzerland, New Zealand, Bulgaria, Denmark, Norway, Russia. In the first three named countries the insanity must be of three years' duration and incurable. In New Zealand the respondent must have been confined in an asylum for a period or periods not less in the aggregate than ten years within twelve years immediately preceding the filing of the petition, and is unlikely to recover. In the other four countries no details are forthcoming.

Medical Testimony.

Thirty medical witnesses have appeared before the Commission. To ten of these the question as to insanity was not put; of the remaining twenty, twelve were in favour of making insanity a ground for divorce, seven were against the proposal, and one was undecided. Two of the medical witnesses who were in favour of the proposal based their conclusion almost entirely on the ground of eugenics (Dr. Rentoul and Dr. David Walsh). Of the eleven specialists in mental disease among the above number, four were in favour of insanity as a ground, while seven were against. Dr. Savage obtained from 82 medical officers of asylums an answer to the question "Is insanity a justifiable ground for divorce?" Of these, 51 were in favour of insanity being a ground, 29 were against the proposal, and 2 were indifferent. Certain of those who replied in the negative did so on religious grounds. Of the total number of medical men whose opinions have been obtained, 63 were in favour of insanity as a ground, while 36 were against.

The attitude of specialists in mental disease towards the present question calls for some comment. In the first place exception is taken to any legislation which would place insanity in a category distinct from that of any other disease. Such action, if taken, would be regarded as a "retrograde step." It is only within comparatively recent times that lunacy has been scientifically studied and treated. It was at one period regarded not as a disease, but as a demoniacal possession, the manifestations of which were to be ruthlessly restrained. The lunatic was treated not as a sick man but as a common brawler, and was locked up as being a disturber of the peace and a public nuisance. It is only in quite modern times that insanity has been regarded as a disease, differing in no essential from other deviations from health. Upon the acceptance of insanity as a disease, there followed its treatment upon scientific lines, and n

those humane principles which underlie the management of other disorders. The alienist naturally protests against any measures which will place insanity once more in a position apart from that occupied by other maladies, and among such measures he ranks the regarding of insanity as a ground for divorce. This view was expressed in the evidence of Dr. W. D. Moore and others. Then, again, the medical officer of an asylum very properly considers the interests of his patients as the first concern in any legislation dealing with the insane, and would be disposed to object to any enactment which might prejudice in any way the welfare and comfort of those under his charge. This attitude is made evident in the examination of several of the witnesses.

As regards the Commissioner in Lunacy he is officially "the guardian of the insane." His duty is to protect the interests of the insane. As Dr. Coupland expresses it, he "holds a brief for the insane," and under these circumstances a Commissioner could hardly be expected to favour any action which would, in his opinion, be possibly unfavourable to those for whom he is responsible.

One witness, Sir James Crichton-Browne, expressed himself as opposed to divorce on any ground.

Arguments against Insanity as a Ground for Divorce.

1. Arguments based upon religious grounds, as represented by those who oppose divorce on any plea, or would permit it only on the ground of adultery.

2. Arguments based on principle. Marriage, it is contended, should be dissolved only by death or misconduct. To dissolve it for insanity is to dissolve it for misfortune. The French code, for example, gives extended grounds for divorce, providing a most liberal interpretation of what may constitute misconduct. Some of the grounds legalized have been considered trivial, but insanity is not recognized in any way, since it is regarded as a misfortune.

3. The practice of other countries. In only eight countries is insanity regarded as a ground for divorce. In Germany, insanity as a ground for divorce was made legal by only a small majority—namely, 161 to 133.

4. The proposal is opposed to the spirit of the marriage vow. The marriage tie is binding "for better for worse, for richer for poorer." The vow is thus expressed:—"Wilt thou love her, comfort her, honour and keep her in *sickness* and in health; and, forsaking all other, keep thee only unto her, so long as ye both shall live?" Insanity is a disease, a misfortune. The fact that it may be brought about by evil living does not affect the morality of the position. Such evil living may belong to the time before the marriage was contracted, and may have been long abandoned.

5. The insanity which is made a ground for divorce may have been brought about—in part at least—by the misconduct of the petitioning spouse. In many cases the husband's conduct has been "the immediate and direct cause of the wife's insanity." "Some insane patients are made insane by sexual perversions of their marital partners."

6. If insanity be made a ground for divorce, there is nothing to prevent other chronic and incurable diseases from being made grounds—such diseases, for example, as hopeless paralysis, malignant affections, and advanced phthisis. If once the principle be admitted that sickness or mere physical misfortune may afford a ground for divorce, it would be illogical not to admit any persisting malady as a reason for the dissolving of the marriage tie.

7. Patients have recovered after twenty and more years of insanity, and thus if insanity of limited duration became a ground for divorce, an individual on recovering may find that he or she had been divorced, and that the partner who should welcome the return of the invalid had already married another.

8. The knowledge that insanity might be a ground for divorce would suffice to hurry some married persons of poor health or of unstable mental condition into actual insanity. This has been specially urged in connexion with puerperal insanity. The knowledge that insanity was a ground for divorce would act very prejudicially with many of the insane, would hinder their recovery, and possibly aggravate their mental condition. Certain of the insane (notably those subject to delusional insanity) "would most deeply resent divorce proceedings," and would be caused "mental torture" by the knowledge that divorce was possible. It would add, moreover, additional terror to the present stigma of insanity.

9. In many cases the insane patient—if divorced—would lose a friend and be deprived of the comfort to be obtained from the visits of the sane spouse.

10. It is said by many medical men that there must often be a great difficulty in establishing the fact that a case is absolutely incurable. In all contested cases a field for controversy and for conflicting medical evidence is certain to be opened up. The poor could not afford to pay for the special medical evidence demanded by these cases. The insane person would often be undefended or possibly be defended by the children who would place themselves in opposition to that parent who was endeavouring to obtain a divorce.

11. It is allowed that hardships are met with in connexion with insanity among married people, and that the conditions existing have led to immorality, to irregular unions, and to neglect of children, but if divorce be granted for incurable insanity of five years' duration, it is obvious that in the majority of instances the evils complained of will have been already encountered before the five years are completed, especially when the subjects of the action are young.

12. A husband may bring an action for divorce in order to avoid paying any longer for the maintenance of his insane wife. This is not unlikely to be the case among the poor, and the cost of maintenance of the wife would then apparently fall upon the rates.

Arguments in Favour of Insanity as a Ground for Divorce.

1. The instituting of divorce proceedings on the ground of insanity would be perfectly voluntary. It is not to be supposed that action would be taken so long as the healthy spouse had any real affection or regard for the insane partner.

2. It is estimated that there are some 41,000 married persons in the United Kingdom who are hopelessly insane. Among these the largest class would be composed of those suffering from secondary dementia. Of such it is said that they "have no proper interest in life, are quite unable to care for themselves or to manage their affairs." They "have so lost the power of proper feeling that the fact of their divorce would make no painful impression on their minds, or no impression at all." "Their affection for their relatives is perverted or dead." They "are for the most part incapable of deriving any comfort from the visits of their friends." They have no civil or other rights, are held by no obligations, and would be personally absolved from any contract entered into when they were of sound mind. To them their wives or husbands are as strangers, and, indeed, these subjects of dementia are, except in a physiological sense, "virtually dead." With regard to the marriage contract they are unable to understand it, to remember it, to fulfil its obligations, or to consent to annul it. Even their property is disposed of for them, while at the same time they are kept in close and compulsory confinement. It is contended that the hopelessly insane are, as parties to any contract, practically non existing.

3. There is abundant evidence to show that in cases of insanity among married people great hardships may be inflicted upon the sane spouse and immorality in various forms encouraged. When the insanity is incurable, the sane spouse is not only denied the enjoyments and advantages of married life, but is condemned—often whilst still young—to a compulsory celibacy, which may extend to the end of his or her days. The same spouse is unable to add healthy legitimate children to the State. The rich man may be denied a heir who would inherit his position and property and continue the family name. The poor man, whose wife is in an asylum for life, must find a housekeeper to manage his home and take care of his children. The woman who is deprived of her husband loses a protector and supporter. As a result, irregular unions, immorality, and the production of illegitimate children are inevitable. The wife has in some instances been driven to prostitution, the children of the legitimate union are apt to be neglected, and the economic troubles incident to the support of two families may be acute. There is no doubt but that the hardships which are almost inevitable whenever a husband or wife is confined for life in an asylum tell more hardly upon the poor than upon the rich, and that the demand for relief in a large series of cases is very pressing.

4. It is urged that if incurable insanity be made a ground for divorce, it would be necessary, or at least logical, to admit any other incurable disease to the same claim. But insanity considered in relation to the marriage tie occupies a position which is unique, and which serves to distinguish it from every other disorder of the body. The great majority of the incurably insane are incapable of carrying out any of the obligations incident to marriage. In a few instances they may be capable of fulfilling the physiological obligation of marriage, but apart from this they are as if they were non-existent. As examples of diseases which may be placed in the same category with insanity in relation to divorce, have been cited hope-

less paralysis, malignant disease, and phthisis. The subjects of these maladies, however, may be still charming and helpful companions, may be capable of managing the affairs of their households, and be able to bestow upon their partners in the fullest degree and to the last days of their lives that love, comfort, and honour which are enjoined by the marriage vow. There is, moreover, one feature in insanity which applies to no other of the diseases named—the incurably insane are removed from their own homes and are confined and isolated in an asylum. Anything approaching family life is impossible in the case of the lunatic, but that life remains but little disturbed in the case of other hopeless diseases. So far as public opinion is concerned, the sympathy of many would extend to the young husband about to divorce an insane wife who no longer even appreciated or recognized his existence, but the whole world would condemn a man who divorced his wife for paralysis or consumption.

5. It is said that the incurability of insanity is difficult to determine. This is acknowledged by all; but all, at the same time, allow that that difficulty is insignificant if a time limit be given. Dr. Savage—who is opposed to making insanity a ground for divorce—states that if five years be allowed, and a definite medical inquiry be held, the risk of miscarriage would be "almost negligible" (35,985), and would not involve "one case in a thousand." The figures already given of the percentages of recoveries (as estimated in periods of years), show how very small is the risk of error in the case of those who have been continuously insane for over three years. When it is claimed that persons have recovered after 20 years' confinement in an asylum, it should be added that the number of those who recover after 10 years is only 0.5 per 100. It is suggested that at the present time errors of judgement creep into decisions in connexion with divorce for adultery, and that this possibility of error is no greater than may be conceived should insanity be made a ground of divorce. As to whether there have been instances where a patient has recovered after having been divorced for insanity, it is stated that in Saxony these cases have been "very few," while in Prussia "such a case has never happened."

6. It is affirmed that the insanity of the respondent may be due to the misconduct or ill treatment of the petitioner. While this assertion is accepted, those who advance it allow that, except in the case of insanity due to syphilis, the charge would be almost impossible to prove. Lunacy following directly upon syphilis does not come within the proposed category to which insanity as a ground would be confined.

7. It is said that the knowledge that insanity may be a ground for divorce would cause a person of unstable mind to become an actual lunatic. This assertion is directly contradicted by certain of the eminent specialists who have given evidence. (See, for example, the evidence of Dr. Hyslop, Dr. Clouston, and Dr. Jones.) Further, it is claimed that if insanity were made a ground for divorce, the condition of those who are actually insane would be aggravated. It is allowed by all that the subjects of delusional insanity "would most deeply resent divorce proceedings." According to Dr. Coupland's tables, the examples of delusional insanity represent only 10 per cent. of the total number of the insane. As to the general question, Dr. Mott does not think that the possibility of divorce would have an injurious effect on the insane, and from his inquiries he says that German physicians do not think that the divorce law of Germany acts to the detriment of the lunatic *qua* lunatic. Dr. Savage's view of this question of injury to the insane is that it is a possibility but not a very serious one.

8. The contention that the insane spouse, if divorced, would lose such comfort as may be derived from the visits of the sane spouse, is met by the declaration that the insane person contemplated in the suggested alteration of the divorce laws is so far mindless as to have lost all affection, and to be incapable of deriving enjoyment from the visits of friends.

Suggested Proposals if Insanity be Allowed to be a Ground for Divorce.

That insanity be a ground for divorce—

1. When the individual has been continuously insane and confined to an asylum for not less three (or five) years.
2. When the insanity is found to be incurable to the satisfaction of the Court.
3. When the age of the insane person is not over 45 years.
4. Any Commissioner in Lunacy to have power to intervene in any proceedings for divorce, on behalf of the insane person.

Supplementary Matters needing Decision.

A. The position when the petitioner has been guilty of adultery.

B. Questions of property, marriage settlements, provision for the insane wife if divorced, and the guardianship of the children of the marriage which has been dissolved.

C. The question of costs for expert medical evidence in cases where the parties are poor.

Comments on the above Proposals.

I.

There is a general feeling that an attempt to form a schedule of the types of insanity for which divorce might be claimed would be impracticable, and that the only determining factor in establishing incurability should be time. The majority of the witnesses who spoke upon this point were in favour of three years. The position as between three and five years is as follows: In order to afford speedy relief to those hardships which arise from the marriages under consideration, and to minimize the immorality which may follow therefrom, the shorter term of years is to be recommended. On the other hand, incurability can be much more certainly determined if five years' continuous insanity be insisted upon. There is a general agreement of opinion that if the test of five years be applied the risk of error is almost negligible. In Germany, Sweden, and Switzerland the term required is three years, and there is no evidence to show that any notable miscarriage of justice has resulted therefrom. There are certain cases where it would be possible to state with assurance that the individual who has been insane for three years is absolutely incurable. In such instances it is hard that the sane spouse should have to wait two years more before obtaining relief. As the Court has to be satisfied that the incurability of the individual has been proved to its satisfaction, it would seem, from the evidence given before the Commission, that little injustice would be likely to ensue if the term were made three years. In New Zealand it is not insisted that the insanity should be continuous, but there does not appear to be any advantage in the requirements adopted by that country.

The term of three years would practically exclude both general paralysis of the insane and recoverable puerperal insanity. The term of five years would make that exclusion absolute. There would appear to be no sufficient grounds for placing delusional insanity in a special category, and for requiring that it should have existed for such a period as ten years. Every case of delusional insanity should be considered upon its merits, and the Court would have to be satisfied that in each particular instance the insanity was incurable. In like manner there would appear to be no practical value in the proposal that in recurrent insanity the respondent should have had a certain number of attacks before an action for divorce could be taken. In this form of insanity, as in the delusional type, the two requirements would be that the lunacy had been continuous for three (or five) years, and had been shown to be incurable to the satisfaction of the Court. These cases of recurrent insanity present great and special difficulties from whatever point they may be viewed. For example, Dr. Hyslop says that he has seen recovery in recurrent mania, due to alcohol, after the thirty-seventh attack of mania, but he adds: "Each recovery was productive of nothing but misery to friends and relations."

It has been proposed in the evidence that in the case of a criminal lunatic who is detained during His Majesty's pleasure, a ground for divorce should exist without any further conditions being fulfilled. Dr. Hyslop points out that this might involve a gross injustice in the case of a young married woman, who, in an attack of puerperal insanity, murders her child, and is sent to Broadmoor. Such a woman might recover in a few months, and might then find that she had been divorced by a husband who had availed himself of this opportunity of getting rid of her.

The "criminal lunatic," whether confined during His Majesty's pleasure, or whether he has become insane since the committal of the crime for which he is at the time imprisoned, should be treated—so far as divorce proceedings are concerned—in precisely the same manner as any other insane married person. The number of criminal lunatics in the United Kingdom is said to be about 1,000.

II.

There is a general opinion that in dealing with the question of incurability, the evidence of three expert

medical witnesses (including the asylum medical officer in charge of the patient) would enable the Court to come to a decision on the point named.

III.

The proposal that the age of the patient should be specified, is based upon these grounds:—The main objects in making insanity a basis for divorce are to relieve certain grievous hardships, and to remove conditions which may lead to immorality. Both these contingencies must be most marked when the parties are young. When the marriage has existed for many years these two pleas for divorce may have little force. Public opinion may not be opposed to a divorce for insanity in a case where the parties concerned are young, and the marriage has not been of long standing, but the criticism may be adverse when the marriage tie has existed for many years, and the parties have reached middle life. The arguments based upon inducements to immorality would be less convincing when the husband and wife are no longer young.

Stress has been laid upon the impossibility of the sane spouse being the parent of healthy and legitimately born children, and of the fact that when one spouse is insane, illegitimate children may result from irregular unions formed by the sane partner. Both these arguments are weakened, and in the case of the women are practically put aside, when the age of the respondent must not exceed 45 years. This suggested age limit will also prevent divorce from being obtained on the ground of senile dementia, a form of mental disease which many demand should be excepted from any proposed legislation. An alternative suggestion, intended to meet the points which have been already raised, is that no action of divorce for insanity should be permissible when the marriage has existed for fifteen years. This proposal would not prevent senile dementia from being made a ground of divorce, nor would it be satisfactory on general grounds in the case of persons who had married in middle life.

SIR THOMAS BOOR CROSBY.

Shortly before resigning the office of Lord Mayor of London, Sir Thomas Boor Crosby, M.D., extended the generous hospitality of the Mansion House to a large party of members of the medical profession, chiefly resident in London, and a few other guests. The invitation was to meet the Presidents of the Royal Colleges of Physicians and Surgeons. Both Sir Thomas Barlow and Sir Rickman Godlee responded to the principal toast of the evening, which was given by the Lord Mayor, who referred to his long and active connexion with the medical profession, and to the efforts he had made during his year of office to systematize and extend the use of special hospitals for teaching purposes. He made some references also to the insurance schemes, and insisted that the medical profession deserved generous treatment from the State, and that by so acting the State would reap a rich reward. Sir Thomas Barlow also made reference to this subject, touching lightly upon the proposals as to a State whole-time medical service, which he considered was contrary to the genius of the country and must destroy the family doctor, and declaring that the maintenance of the voluntary hospital system, though some State subsidy might in future become necessary, would afford in the future as in the past the greatest possible guarantees for the best treatment of patients.

The Lord Mayor proposed the health of Dr. Léon Blanc, Mayor of Aix-les Bains, who briefly responded. Afterwards the health of the Lord Mayor himself was proposed by Sir William Church, and drunk with much cordiality.

Among those present were: Sir William Osler, Bart., and Sir T. Clifford Allbutt, Regius Professors of Medicine in the University of Oxford and Cambridge respectively; the Director-General of the Medical Department of the Navy (Sir James Porter); the Principal (Sir Henry Miers), the Vice-Chancellor (Dr. Herringham), and Chairman of Convocation (Sir Edward Busk) of the University of London; Sir Frederick Treves, Bart., Sir R. Douglas Powell, Bart., Sir Dyce Duckworth, Bart., Sir Watson Cheyne, Bart., Sir Henry Morris, Bart., Sir Lauder Brunton, Bart., Sir Francis Champneys, Bart., Sir William Church, Bart., Sir Anderson Critchett, Bart., Sir James Goodhart, Bart., Sir Robert Morant, K.C.B., Sir David Ferrier, Sir A. Pearce Gould, K.C.V.O., Sir J. Rose Bradford, K.C.M.G., Sir Malcolm Morris, K.C.V.O., Sir William Bennett, Sir John Tweedy, Sir Frederick Hewitt, Sir Shirley Murphy, Sir Anthony Bowlby, Sir George H. Savage, Sir Cooper Perry, Sir William J. Collins, Dr. Theodore Williams, Mr. C. A. Ballance, and Dr. Frederick Taylor.

On November 9th the usual ceremony took place at the Law Courts, when the Recorder of London (Sir Forrest Fulton) introduced the new Lord Mayor to the Lord Chief Justice, who was accompanied by Mr. Justice Darling and Mr. Justice Avory. After introducing Sir David Burnett the Recorder presented the retiring Lord Mayor, and described the events of his year of office. Sir Thomas Crosby, he said, who entered upon the duties of the chief magistracy at a more advanced age than any of his predecessors, had filled that position with dignity and success. One of the leading events of the mayoralty was the visit of the King and Queen to St. Paul's Cathedral to render thanks for their safe return from India. In the early days of his mayoralty Sir Thomas Crosby received Lord Grey, upon whom was conferred the freedom of the City, and later he entertained Mr. Borden, the distinguished and popular Prime Minister of Canada. The retiring Lord Mayor did his utmost to mitigate the consequences of the coal strike, holding a conference of municipal authorities at the Mansion House. He also opened a fund for the relief of the widows and orphans of those who were lost in the *Titanic*, and in all over £400,000 was collected. His public services had been recognized by the grant of the honorary degree of Doctor of Laws of the Universities of Dublin and St. Andrews. Sir Thomas Crosby and his daughter, who had officiated as Lady Mayoress, would carry with them the heartiest good wishes of their fellow-citizens on their retirement into private life.

After addressing the Lord Mayor Lord Alverstone turned to the retiring Lord Mayor, who, he said, did not require to justify his conduct in that position. His fellow-citizens and friends had already announced in the most public way their appreciation of what he had done. It was remarkable that a man who was now 82 could have successfully gone through the great labour and strain of the office of Lord Mayor. He would have in his retirement the good wishes of his fellow-citizens and the affection of his friends.

TREATMENT OF CANCER.

In a paper by Dr. Bashford written at our invitation and published in the British Medical Journal of May 27th, 1911, incidental references were made to a method of treating cancer followed by Dr. James Fenwick of Accrington, particulars of which had been published in the British Medical Journal of March 6th, 1909, p. 589. Dr. Fenwick having complained of such references and of his name appearing at all in such an article and in such connexion, we and Dr. Bashford desire to express our regret to Dr. Fenwick that any references should have been made to him and his said treatment in such number, and to withdraw unreservedly any expressions which could be interpreted as an imputation or reflection upon his professional or personal honour, standing or ability.

It is proposed to establish an Italian Radiological Society. It is intended that the head quarters of the society shall for the present be at the Radiological Institute of the civil hospitals of Genoa. The organizing committee consists of Professor Vottorio Maragliano. Dr. Giacomo Pesci, Dr. G. B. Cardinale, and Professor David Vallebona.

An influential committee has been formed to promote a fund which is to be devoted to commemorate the eminent services to both rich and poor of the late Dr. John E. Ranking, who was killed in a motor accident recently. For over thirty years he rendered most devoted and most successful services to the General Hospital at Tunbridge Wells, and it is proposed to apply the fund in some practical way for the benefit of the sick and suffering poor; the form which the memorial will take must depend upon the amount forthcoming. It is hoped that the sum will be a substantial one, so as to admit of some form of permanent endowment. Cheques may be sent to Mr. F. Wadham Elers, chairman, General Hospital, Tunbridge Wells.

LITERARY NOTES.

SIR SHIRLEY F. MURPHY has been appointed editor of *Public Health*, the official organ of the Society of Medical Officers of Health, in succession to Dr. G. F. McCleary.

We have received from Messrs. Henry Sotheran and Co. their latest catalogue, *Bibliotheca Criminalis*, comprising a collection of State and criminal trials of great historical and sociological interest. It is much more than an ordinary catalogue, most of the publications being accompanied by notes giving a summary of their contents, and calling attention to interesting or peculiar facts connected with them. The works included in the catalogue serve to illustrate in a striking way the social condition of England, more especially in the eighteenth century.

In the JOURNAL of November 2nd we gave some specimens of medical Latin, which by the way could easily be paralleled by samples of journalistic, clerical, and legal Latinity. Most busy practitioners will probably agree with the father of Samuel Parr. The famous scholar was the son of a general practitioner at Harrow. After laying the foundations of his classical learning at that great school, family circumstances made it advisable that he should be apprenticed to his father at the age of 14. He himself said that for a physician he might have done well; "but for a surgeon, never." Among his reminiscences of the medical period of his life he used to relate that even at that early age his critical taste for pure Latinity made him a severe critic of the prescriptions. "Father," he would say, glancing his eye over one, "here's another mistake in the grammar." "Sam," replied the unclassical father, "damn the prescription; make up the medicine!"

Reference was made in the JOURNAL of November 2nd to Mark Akenside, the poet physician. As was there said, probably few now read his poetry, but his name still figures in textbooks of literary history and in biographical dictionaries. He is interesting to us because he was a physician, but it is unpleasant to know that in a rough age he was remarkable for inhumanity to poor patients. The famous J. C. Lettsom was a pupil at St. Thomas's Hospital. In Pettigrew's life of him it is related that among the physicians there at that time was Akenside, the author of *Pleasures of the Imagination*, which the young man had read with great admiration. Lettsom anticipated great pleasure from coming under the notice of the great man. But, says Pettigrew:

> Great, however, was his disappointment in finding Dr. Akenside the most supercilious and unfeeling physician that he had hitherto known. If the poor, affrighted patients did not return a direct answer to his queries, he would often instantly discharge them from the hospital. He evinced a particular disgust for females, and generally treated them with harshness. It was stated that this moroseness was occasioned by disappointment in love, but hapless must have been that female who should have been placed under his tyranny. Lettsom was inexpressibly shocked at an instance of Dr. Akenside's inhumanity, exercised towards a patient in Abraham's ward to whom he had ordered bark in bolasses, who in consequence of not being able to swallow them so irritated Akenside as to order the sister of the ward to discharge him from the hospital, adding "He shall not die under my care." As the sister was removing him in obedience to the doctor the patient expired. One leg of Dr. Akenside was considerably shorter than the other, which was in some measure remedied by the aid of a false heel. He had a pale, strumous countenance, but was always very neat and elegant in his dress. He wore a large white wig and carried a long sword. Lettsom never knew him to spit, nor would he suffer any student to spit in his presence. One of them accidentally did so, yet standing at some distance behind him. The doctor instantly spun round on his artificial heel and hastily demanded who was the person that spit in his face. Sometimes he would order some of the patients on his visiting days to precede him with brooms to clear the way and prevent the patients from too nearly approaching him. On one of these occasions Richard Chester, one of the governors, upbraided him for his cruel behaviour. "Know," said he, "thou art a servant of this charity." On one occasion his anger was excited to a very high pitch by the answer which Mr. Baker, the surgeon, gave to a question the doctor put to him respecting one of his sons, who was subject to epilepsy, which had somewhat impaired his understanding. "To what study do you purpose to place him?" said Akenside to Baker. "I find," replied Baker, "he is not capable of making a surgeon, so I have sent him to Edinburgh to make a physician of him." Akenside turned round from Baker with impetuosity, and would not speak to him for a considerable time afterwards.

Akenside, however, would sometimes condescend to explain a case of disease to the pupils, which always appeared sagacious; and, notwithstanding his irritable temper, he was more followed than another physician who was "as condescending as Akenside was petulant." Akenside is mentioned by Johnson in a letter to Mrs. Thrale, dated August 23rd, 1877 (see *Letters of Samuel Johnson, LL.D.*, collected and edited by George Birkbeck Hill, Oxford, 1892). Johnson writes:

> At Litchfield? Yes; but not well. I have been trying a great experiment with ipecacuanha which Akensyde (*sic*) had inclined me to consider as a remedy for all constrictions of the breath. Lawrence indeed told me that he did not credit him, and no credit can I find him to deserve. One night I thought myself the better for it, but there is no certainty. On Wednesday night I took ten grains; the night was restless. On Thursday morning I took ten grains; the night again was restless. On Friday night I took twenty grains, which Akensyde mentions as the utmost that on these occasions he has ventured to give; the night was perhaps rather worse. I shall therefore take truce with ipecacuanha.

Birkbeck Hill, in a note to this passage, says that Akenside used to frequent Tom's Coffee House in Devereux Court, close to Johnson's haunts, where, no doubt, the two men often met. One evening, it is related by Sir John Hawkins, "Saxby of the Custom House" attacked the profession of physic, which Akenside defended. "Doctor," said Saxby, "after all you have said, my opinion of the profession is this: the ancients tried to make it a science and failed; and the moderns to make it a trade and have succeeded."

Benjamin Franklin, as appears from his letters and writings, was a great advocate of fresh air. In a letter on the causes and cure of smoky chimneys, written "at sea" on August 28th, 1785, to Dr. Ingenhousz of Vienna, physician to the Empress Maria Theresa—the same physician who was one of the first to expose the pretensions of Mesmer—Franklin takes occasion to say that some are as much afraid of fresh air "as persons in the hydrophobia are of fresh water."

> I myself had formerly this Prejudice, this *Aërophobia* as I now account it, and dreading the supposed dangerous Effects of cool Air, I consider'd it as an Enemy and clos'd with extreme care every crevice in the Rooms I inhabited. Experience has convinced me of my Error. I now look upon fresh Air as a Friend; I even sleep with an open Window. I am persuaded that no common Air from without is so unwholesome as the Air within a close Room that has been often breath'd and not chang'd. . . . You Physicians have of late happily discover'd after a contrary Opinion had prevail'd some ages that fresh and Cool Air does good to Persons in the Small Pox and other Fevers. It is to be hop'd that in another Century or two we may all find out that it is not bad even for People in Health.

He goes on to speak of the "Air in close Rooms where the perspirable matter is breath'd over and over again by a number of assembled People" as being hurtful to health:

> After being in such a Situation, many find themselves affected by that Febricula which the English alone call a Cold, and perhaps from the Name imagine that they caught the malady by going out of the Room when it was in fact by being in it.

He returns to the subject of fresh air in a letter on the art of procuring pleasant dreams, written to a young lady when he was 80 years of age. He says:

> Another means of preserving health to be attended to is the having a constant supply of fresh air in your bed-chamber. It has been a great mistake the sleeping in rooms exactly closed and in beds surrounded by curtains. No outward air that may come into you is so unwholesome as the unchanged air often breathed of a close chamber. As boiling water does not grow hotter by boiling longer, if the particles that receive greater heat can escape; so living bodies do not putrefy if the particles so fast as they become putrefied can be thrown off. Nature expels them by the pores of the skin and the lungs, and in a free open air they are carried off; but in a close room we receive them again and again, though they become more and more corrupt. A number of persons crowded into a small room, thus spoil the air in a few minutes and even render it mortal, as in the Black Hole at Calcutta. A single person is said to spoil only a gallon of air per minute, and therefore requires a longer time to spoil a chamber full. But it is done, however, in a proportion, and many putrid disorders hence have their origin. . . . Physicians after having for ages contended that the sick should not be indulged with fresh air, have at length discovered that it may do them good. It is therefore to be hoped that they may in time discover likewise that it is not hurtful to those who are in health, and that we may be then cured of the aërophobia that at present distresses weak men, and makes them choose to be stifled and poisoned rather than leave open the window of a bedchamber or put down the glass of a coach.

These extracts are taken from one of a series of papers entitled The Medical Side of Benjamin Franklin, published in the *University of Pennsylvania Medical Bulletin*, by Dr. William Pepper.

British Medical Journal.

SATURDAY, NOVEMBER 16TH, 1912.

MUNICIPAL CONTROL OF TUBERCULOSIS IN AMERICA.

It is not only in matters of commercial enterprise that the nation has reason to heed the emphatic advice to "wake up." Publications without number have appeared, pointing out the ideal course to pursue in the practical handling of tuberculosis; every one is agreed upon the main points, but anything like organized action is still in abeyance. While we in this country have been dreaming, some other countries have indeed woke up. In the City of New York a system has now been in force for eight years which not only embodies the best ideals but has put them to the test, and thus an amount of practical experience and information has been acquired which deserves the closest attention of all antituberculosis workers in the great towns which still lag behind in the onward march.

The Department of Health of the City of New York, quickly recognizing the value of a system which in its inception was largely dependent upon charitable effort, began in 1904 to establish tuberculosis clinics for the early recognition of the disease among the poor. They undertook to assist incipient cases to obtain the necessary hygienic surroundings, to supervise the mode of life of the established cases, and to remove, wherever possible, the advanced cases from close association with the healthy. Full advantage could thus be taken of the various public institutions, while information was continually being diffused amongst the most ignorant by leaflets and by word of mouth in the various languages current among the labouring classes of the city. Regular visitation of the patients in their own homes by the nurses attached to each clinic has probably done more than anything else to popularize the system.

A report by Dr. John S. Billings, jun.,[1] recently published, gives a detailed account of the gradual progress of the work, the difficulties encountered, and the results achieved. The public importance of the movement would appear to have called forth a generous dole of public money, and from small beginnings in makeshift buildings the work is now carried on in some instances in specially constructed clinics described as being models of convenience. The main clinic at Brooklyn, it is said, is the largest and finest in the United States. The description given in the report proves that no expense has been spared to make it so.

Scattered throughout Greater New York there are no less than thirty-two clinics, linked together for the most part by the Department of Health. Similar methods of examination, registration, visitation, and treatment are carried out in all of them, and in the German and Italian quarters the special needs of these nationalities are cared for. The popular belief that Jews are more or less immune to the disease is altogether discounted by the experience of the clinics among the very large Hebrew population in the city, notwithstanding the fact that patients belonging to this nationality are, as a rule, more appreciative of the hygienic precautions that are impressed upon them than are others in a similar rank of life.

Periodical examination by specially trained physicians and visitation by the nurses attached to each clinic, together with the uniform system of recording histories and progress, has, it is stated, enabled a really effective control to be kept over a very large number of tuberculous persons. The medical services rendered were given gratuitously at the outset, but the extension of the work has necessitated the appointment of salaried officers, who are still assisted by a large staff of volunteer workers. The nursing staff render valuable service both in the clinics and in the homes of the patients; receiving the doctor's opinion and instructions at first hand, they are able to assist the patient and his friends in carrying out the prescribed course of life, and are in turn able to report to the doctor the conditions under which the patient has to live. Tuberculin injections are not employed to any great extent, because no hospital facilities are at hand for keeping patients under sufficiently close observation. Recognizing the importance of extra diet in certain cases of pulmonary tuberculosis, the Health Department formerly made grants of milk and eggs to some of their clinics, but during the last few years the supply has been discontinued. The system of registration is very complete, and Dr. Billings's report contains a full description of it. By its means the transference of a patient from one clinic to another does not involve interference with the continuity of treatment or record.

As an adjunct to the tuberculosis clinics some day camps have been established, where a considerable number of patients, and especially children, can be kept under observation under the most favourable conditions during the day time.

The statistical results of the clinics and camps prove a steady decline in the death-rate, and in course of time must apparently show a similar decrease in the case incidence. The most difficult, but perhaps the most essential part of the whole system of supervision, is the segregation of the infective patient.

Amid much that is uncertain, there is no sort of doubt as to the danger to the community of the patient who is constantly spitting up infective bacilli. The educated sufferer may so dispose of his excretions as to become comparatively harmless, but the thousands of uneducated patients are constantly spreading the disease broadcast, and there is but little hope of the eradication of consumption so long as they are permitted to do so.

New York supplies an object lesson which should be taken to heart by all municipalities. The advantage of combined action is universally recognized; the cost can now be calculated, and it only remains for local authority to supply the energy for united effort. The State provision of sanatoriums is but a small part of the whole. The real mischief is steadily going on in the homes of the people, and it is there that sympathetic help and material assistance is needed. The Health Department of New York has shown the world how it can be given

[1] *The Tuberculosis Clinics and Day Camps of the Department of Health.* By John S. Billings, Junr., M.D. No. 2, Monograph Series. July, 1912. New York: Department of Health. 1912. (Demy 8vo, pp. 123.)

THE RACE OF LIFE.

THERE is a striking passage in Oliver Wendell Holmes's *Autocrat of the Breakfast Table*. Although it must be familiar to all admirers of the writer in whom, like righteousness and peace, medicine and literature met and kissed, it will still bear partial quotation. Holmes says: "Nothing strikes one more in the race of life than to see how many give out in the first half of the course. Commencement Day always reminds me of the start for the Derby, when the beautiful high-bred three year olds of the season are brought up for trial. That day is the start, and life is the race. Here we are at Cambridge, and the class is just graduating. . . . Ten years gone, first turn in the race, a few broken down, two or three bolted. Several show in advance of the ruck. *Cassock*, a black colt, seems to be ahead of the rest. Those black colts commonly get the start I have noticed of the others in the first quarter. *Meteor* has pulled up. Twenty years. Second corner turned. *Cassock* has dropped from the front and *Judex*, an iron grey, has the lead. But look how they have thinned out, down flat—five—six—how many? They lie still enough; they will not get up again in this race. . . . Thirty years. Third corner turned. *Dives*, bright sorrel, . . . begins to make play fast. . . . But who is that other one that has been lengthening his stride from the first, and now shows close up to the front? Don't you remember the quiet brown colt, *Asteroid*, with the star on his forehead? That is he. He is one of the sort that last; look out for him. The black 'colt' as we used to call him, is in the background, taking it easily in a gentle trot. There is one they used to call the filly on account of a certain feminine air he had. Well up, you see. The filly is not to be despised, my boy. Forty years. More dropping off, but places much as before. Fifty years. Race over. All that are on the course are coming in at a walk. No more running. Who is ahead? Ahead! What! and the winning post a slab of white or grey stone, standing out from that turf where there is no more jockeying or straining for victory. Well, the world marks their places in its betting book, but be sure that these matter very little if they have run as well as they knew how."

The exclamation of Abernethy on entering his crowded lecture theatre one October, "Good God, gentlemen! what is to become of you all?" is historical. Various attempts have been made to answer this question. The most thoroughgoing is that of Sir James Paget. In the *St. Bartholomew's Hospital Reports* for 1869 he published a short paper entitled, "What Becomes of Medical Students?" in which he gave the results of an inquiry as to the careers of a thousand of his old pupils up to fifteen years after they entered the school. Of the whole number, 23 achieved distinguished success, 66 considerable success, 507 fair success, 124 very limited success, 56 failed entirely, 96 left the profession, 87 died within twelve years of beginning practice, 41 died during their period of studentship. Of the 41 who died, 4 fell victims to fever caught in the hospital. Of the 87 who were taken away early in their career as practitioners, 21 died of "diseases incurred in their duties." From these figures, which may be taken as representative, it will be seen that, while comparatively few achieved considerable success, more than half were fairly successful. It may be said here that "considerable success" is ascribed by Paget to those who gained high positions in the public services or leading practices in good districts, or who retired with money earned in practice, or gained much more than ordinary esteem and influence in society. "Fair success" is defined as having a practice that enables a man to live, maintaining a good reputation, or holding ordinary appointments in the public services. The number of those who for one reason or another fell by the way is relatively large. Paget's statistics may be compared with the results of an inquiry made by Dr. Squire Sprigge, and published by him in his book, *Medicine and the Public* (London, 1905): Of 250 men who entered a well-known London hospital in 1879, 187 qualified and 63 did not qualify. Of the 187, 9 met with distinguished success, 45 with considerable success, 25 with fair success in the services—2 of these might be included in a higher class; 46 met with fair success in practice, 5 left the profession after qualification, 6 discontinued medical study as pupils, 2 died during pupilage, 23 died within twelve years of commencing practice, and 6 failed entirely. If the "considerable" and "fair" successes are added together, the conclusion is that 116 men out of 187—that is, 66 per cent.—of qualified medical men from one metropolitan medical school "have reason to be satisfied with their professional careers."

To few is it given to reach the highest pinnacle of success. The race is to the swift and the battle to the strong; but the factor of survival also comes into play. A man is often left at the top because death has swept away those who might have disputed the pride of place with him. And of those who die in their youth, there must always be some of whom we might say, as Newton said of the young mathematician who died in his 34th year, "If Cotes had lived, we might have known something!"

If we are asked, What constitutes success? our reply is that we agree generally with Sir James Paget. If it is to be measured by the amount of money made, there are many quacks who are more "successful" than most doctors. Success should be estimated by the amount of good done, by the respect and confidence of the profession, by honestly won reputation among the public, and by the fragrance of actions which smell sweet and blossom in the dust. To gain success of this kind a man must, of course, have a sound knowledge of his work and must know how to apply that knowledge. But something more is required. The "good bedside manner" is often referred to by novelists as if it were merely the art of ingratiating oneself with the patient and his friends. It is often implied that it is nothing more than diplomacy of a somewhat doubtful character and even that there is in it a touch of charlatanism. It is undeniable that this is occasionally the case, but it is more often the patient's fault than the doctor's. There are persons who cannot bear it even to be hinted that there is anything about them that smells of humanity. In handling such a situation diplomacy is called for in the patient's own interest.

Sir William Jenner, who was incapable of artifice of any kind, used to say that the manner mattered little as long as the doctor was in earnest and conveyed the impression that he was putting forth all his knowledge and skill for the benefit of the sufferer. Still the man who, "having been praised for bluntness, doth affect a saucy roughness," may drive a patient weakened by suffering to despair. Abernethy's manner was worth a thousand a year to Astley Cooper, according to the testimony of Cooper himself. The secret of the "good bedside manner" in the right sense of the phrase is the power of impressing one's personality on the patient so as to

inspire him with the confidence and the lively hope of cure that play so large a part in recovery from illness. This, whether it be called "personal magnetism" or "suggestion," is a positive though indefinable, quality. Without it mere scientific knowledge is of little avail. It makes the difference between the successful and the unsuccessful doctor. Another quality which is essential to success is the possession of a businesslike mind and habits. Sir James Paget said he had known more failures in the medical profession through want of this quality than from any other deficiency; "more than the utterest want of scientific or even of good practical knowledge." It is almost needless to add that a strict conformity to the highest standards of professional honour is indispensable for such success as an honest man cares to gain. Madame de Maintenon's maxim, *Rien n'est plus habile qu'une conduite irréprochable*, holds good in regard to the practice of medicine as well as to the slippery paths of court life. In a word, character tells more than knowledge. As Paget says in commenting on the results of his inquiry: "Nothing appears more certain than that the personal character, the very nature, the will of each student has far greater force in determining his career than any helps or hindrances whatever." This is why brilliant students often fall out in the race, leaving the field to the "Asteroids," who make less display at first, but gain quietly and surely on their more showy competitors.

THE PITUITARY BODY.

None of the ductless glands has attracted so much attention during the last few years as the pituitary body. Physiologists, pathologists, clinicians, and speculative philosophers have combined to investigate its condition in health and disease, each using his own methods of research, each attaining some measure of success in his conclusions. The amount of work done and the number of observations made have been great; still greater the number and variety of the highly speculative (and useless) theories developed to explain the possible actions of the internal secretion of the pituitary gland; yet the positive advance made in the comprehension of its place in the human economy is small; the number of the undisputed facts known about its activity and influence is still smaller. The literature of the subject is enormous, and grows daily. We have before us two books, both excellent in their different styles, in which the slow growth of knowledge about the pituitary gland and the immense difficulties met with in its acquisition are clearly to be traced. Delille[1] first gives a straightforward account of much of the literature of the subject, the various researches on the actions of pituitary extracts, the conclusions drawn by the various writers; later he gives his own clinical experimental and pathological observations. He concluded—writing three years ago, it must be remembered—that the anterior lobe of the pituitary body was an actively secreting gland, though its extracts appeared to have no physiological action on injection or ingestion, and that the posterior or nervous lobe was devoid of all glandular function, although its extracts had marked influences upon the heart and blood vessels, the kidney, metabolism, and bodily growth. His account of the connexion between the pituitary gland and acromegaly and gigantism was necessarily far from clear; for it was not at that time apparent that the hyperpituitarism producing giant growth or acromegaly might pass on into a stage of dyspituitarism or hypopituitarism—to use a barbarous but convenient termir ology—in the course of time. Delille's clinical experiences led him to conclude that pituitary extract should be given when it was desired to raise the blood pressure and slow the heart or to procure diuresis; it was particularly indicated in exophthalmic goître and in cases of hypopituitarism.

Professor Cushing's[2] far more ambitious essay is certainly the most complete and the most valuable contribution to the pathology of the pituitary body that has yet been made, and it defines with the utmost fairness and precision the point to which the physiologist and the pathologist have advanced in the definition of its functions, the recognition and treatment of its disorders. After a brief summary of the anatomy, physiology, pathology, and chemistry of the gland has been given some two hundred pages are devoted to the detailed and well illustrated study of 47 patients with pituitary disorders, all carefully detailed and discussed by Professor Cushing. About one hundred pages on the incidence, symptomatology, and treatment follow. The posterior or nervous lobe of the gland is described as made up of neuroglial fibres radiating from the infundibulum; in the spaces between the fibres are, sometimes, faintly eosinophile hyaline bodies "which seem to arise either as a form of secretion from the cells of the pars intermedia or as an actual metamorphosis of migrating epithelial cells." Cushing and Goetsch have claimed that the cerebro-spinal fluid actually contains a substance with the properties of extracts of the posterior lobe itself. There seems no reason to doubt that the secretion gets into the ventricles through the infundibulum. Entering into the circulation in excess, this secretion produces glycogenolysis and glycosuria; but if its amount is diminished (as in hypopituitarism due to operation or disease) an abnormally high tolerance to sugar may be acquired, with the resultant accumulation of fat. The degree of this acquired tolerance may be of diagnostic utility, and certainly forms a basis for rational treatment with pituitary extract. Professor Cushing gives a critical analysis of his cases, a lucid exposition of the considerations that lead to the placing of any one of his patients in the classes of past or present hypo-, dys-, or hyper-pituitarism. His main interest would seem to lie in the clinical surgery of his cases, the indications for operative treatment, and the precise form that operative interference should take. Many of his conclusions are supported by the results of experiments upon dogs and puppies made by himself and his assistants. His remarks upon the connexions between the pituitary body and the other ductless glands, hibernation, infantilism, precocious sexual development, diabetes insipidus, and countless other curious or unusual happenings in medicine, are often most interesting, and show a wise restraint in the use of the imaginative faculties that cannot be too warmly recommended to the attention of most of those who busy their pens on the subject of the hypophysis. In style and matter alike the work does the greatest credit to American surgery and experimental physiology. It should become a classic, and may be warmly recommended to all neurologists, surgeons, and clinicians.

[1] *L'hypophyse et la médication hypophysaire, étude expérimentale et clinique.* Par M. le Docteur A. Delille. Paris: G. Steinheil. 1909. (8. roy. 8vo, pp. 352. Fr. 6.)

[2] *The Pituitary Body and its Disorders: Clinical States Produced by Disorders of the Hypophysis Cerebri.* By H. Cushing, M.D. Philadelphia and London: J. B. Lippincott Co. 1912. (Roy. 8vo, pp. 351; 319 illustrations. 18s. net.)

THE REPRESENTATIVE MEETING.

THE Representative Body of the British Medical Association will assemble at the Connaught Rooms for the Special Meeting on Tuesday, November 19th, when the chair will be taken by Mr. Verrall, Chairman of Representative Meetings, at 10 a.m. The notice convening the meeting proposes that it shall be continued on the following day Under the regulations of the Association any Representative Meeting can (By-law 41) adjourn from day to day until the completion of its business; the quorum (By-law 40) is at least one-half of the number of Representatives "appointed to attend such meeting." As a Representative points out in a letter published this week, it is important that every Representative should arrange to stay until the business of this most momentous meeting is completed; this includes the confirmation of the minutes, and a quorum must be kept until this is done. The resolutions adopted at the special meetings of Divisions, which constitute the instructions to their Representatives, are reported in the SUPPLEMENT, so far as received up to Thursday morning, November 14th. So far as can be gathered from these resolutions, the opinion seems to be general that the terms and conditions of service with respect to medical benefit before the profession are not satisfactory and cannot be accepted as they stand at present. There is, however, clearly a considerable body of opinion that they afford a basis for opening negotiations with the Government with the object of securing alterations which may make the conditions and terms set out in the Provisional Regulations for Medical Benefit and the statements of the Chancellor of the Exchequer acceptable. So far as we can see, the only way in which this view could prevail would be for the Representative Meeting to find some way of delegating to a committee the power to negotiate and to come to terms in its name and under its authority. Under the regulations of the Association, the power to take a referendum is strictly limited to a case in which the Council (Article 32 (*b*)), by a majority of not less than two-thirds of the votes given on the question, decides that the resolution does not properly represent the wishes of the Association, and that a referendum is expedient. The referendum is to meetings of Divisions summoned for the purpose of considering the resolution (Article 32 (*c*)). If the aggregate number of votes given for the resolution at all the Division meetings shall exceed the aggregate number of votes given against the resolution at all the Division meetings, or if no vote shall be given at any Division meeting against the resolution, the same shall be deemed to have been approved on a referendum. Neither the Representative Meeting nor the Council has power under the regulations to take a referendum of individual members, much less to take a plebiscite of the profession, as has been suggested by some of our correspondents. As will be seen by the report of the proceedings of the Council on October 31st, a proposal was then made that the Council should recommend each Division, after discussion in divisional meeting, to take a ballot by postal card of its members and of non-members. The Chairman pointed out that the Divisions had no right under the constitution of the Association to take such a vote. It was suggested that there was nothing to prevent any Division from doing this if it wished; the Chairman agreed that this was so, but said that it could not be of any effect, and that the Divisions could not spend any of the Association's funds on such a purpose.

ANTIVIVISECTIONISM IN GLASGOW.

THE antivivisectionists—or, at any rate, one fraction of that motley body—are on the warpath in Scotland. A few weeks ago there was an exhibition of the usual kind in Buchanan Street, Glasgow, followed by a newspaper controversy in which all the old "platform facts" were again put forward. The antivivisectionists appear to think that age cannot wither nor custom stale the freshness of their traditional fables, and as they appeal to ignorance and sentimentality, they have doubtless good ground for the belief. In an address delivered by Dr. Hadwen he replied to a statement by Sir George Beatson, to the effect that experiments on living animals had been necessary for certain surgical operations, by saying that he had in his pocket a letter from Professor Lawson Tait, "who stated that vivisection had done nothing for surgery, but led to horrible bungling." Tait was doubtless a bold operator in his own sphere, but his testimony as to the value of vivisection outside that sphere carries little weight with the profession. Then, of course, we have Sir Frederick Treves's statement as to the futility of some experiments made on the suturing of the intestine. That statement was made in an address on some rudiments of intestinal surgery which appeared in the BRITISH MEDICAL JOURNAL of November 5th, 1898. Sir Frederick Treves has over and over again complained of the use that has been made of it by antivivisectionists. In the *Times* of April 26th, 1902, he made a strong protest, in which he said that those familiar with the controversial methods of the antivivisection party would not be surprised that certain of his remarks had been cunningly isolated from the context and had been used in advertisements, pamphlets, and speeches to condemn all vivisection experiments as useless. He concluded by declaring that no one is more keenly aware than himself of the great benefits conferred upon suffering humanity by certain researches carried out by means of vivisection. Dr. Hadwen is either aware of this protest or he is not. If he is aware of it, he can scarcely be acquitted of the charge of disingenuousness; if he does not know of it, he has spoken without proper inquiry into the facts. Sir William Ferguson, whom he also cited as a witness against the usefulness of vivisection, was a great operator; but he was not a scientific surgeon, and his greatest admirers will not be disposed to attach much value to his opinion on the question of vivisection. It must be remembered, too, that he was not speaking of vivisection as it is practised in this country nowadays. The rest of the address calls for no comment. Mention must, however, be made of an amusing incident which occurred after the orator had finished. Dr. Charles Walker (we quote a report which appeared in the *Glasgow Herald* of October 25th) said he took it from Dr. Hadwen's views as to the germ theory of disease that he would not believe him if he said a tube he held contained a micro-organism that would produce a specific disease. Dr. Hadwen replied that he would not. Dr. Walker thereupon said that he would prophesy on a piece of paper, which he would place in a sealed envelope and hand to the chairman, exactly what results would follow if Dr. Hadwen would allow him to inject into him some of the culture from the surface of the jelly contained in the tube, and he challenged Dr. Hadwen to allow him to do this. He was not going to tell what the bacillus was going to be. If he did so, Dr. Hadwen would not be injected. He could not make the prophecy unless he knew he was going to isolate the bacillus and knew exactly what it was going to do. Dr. Hadwen replied he would not be such a fool as to allow any culture, so-called, or any so-called germ beneath his skin, because they could not inject any one of those germs without inoculating at the same time the environment with which it was associated. To this Dr. Walker retorted that it was obvious that Dr. Hadwen did not believe sufficiently in the cause he was advocating, or value it sufficiently high to run any risks. He added that he would use the culture with due antiseptic precautions, and would do the same to himself as to Dr. Hadwen, without

the antiseptic. Dr. Hadwen replied that he would not be such a fool as to accept the challenge. In reply to further questions by Dr. Walker, he said he did not believe in antiseptics in relation to surgery; while, in answer to Dr. Cathcart, he added that he was perfectly prepared to be bitten by as many plague fleas as they liked. He maintained that the flea could not convey disease. The challenge would hold good also with regard to malarial mosquitos. Dr. Hadwen probably knows that he is tolerably safe in offering to be bitten by malarial mosquitos or plague fleas in this country. But in regard to Dr. Walker's bacilli he would seem to be in the same state of mind as Hurree Babu in *Kim* who was afraid of "hypothetical devils" in which he did not believe. This we partly understand, but we should like a little more light as to the "environment" of the bacillus which he fears so much. And how is an "environment" inoculated?

SEASICKNESS.

In spite of the experience of centuries the etiology and treatment of that very distressing condition, seasickness, is still more or less of a mystery even to the most highly-reputed members of the faculty. In the latest contribution to the literature of the subject, Dr. Joseph Byrne, himself an acute sufferer, has made an exhaustive inquiry[1] into the causation of seasickness founded on a complete system of experiments carried out mainly on himself. He has, in his own words, "made a thorough study of the semicircular canals as affected by rotations, aural irrigations, and galvanism." In addition he subjected himself in a truly heroic manner to the utmost discomfort in many trips on angry seas, making careful observations the while of his blood pressure, pulse, urine, sensations, and so on. A large part of the book is given up to a minute and careful description of the anatomy of the semicircular canals—so minute and careful in fact that it is to be feared these pages will only appeal to the ultra-specialist. The same remark applies to the accounts of the many experiments to which the author submitted himself and friends in the quiet and privacy of his home. The general reader will find more interest in the studies in seasickness based on the actual experiences of sea voyages. The author spared himself not at all, but deliberately sought out the times and places most likely to produce the maximum effect. His observations on the necessity of teaching students the general principles underlying the treatment of seasickness are particularly well timed, for as a rule this matter, which is most likely at some time or other in his career to occupy the attention of the practitioner very seriously and test his skill to the utmost, is left severely alone by teachers of medicine. In regard to the treatment of seasickness, Dr. Byrne has not yet found a never failing remedy. He has little new to add to the rules for the general management of a case. So far as drugs are concerned, he is of opinion that hyoscin should never be used, whilst "morphine was also found to have disagreeable effects notwithstanding its effect in enhancing the circulatory function." Bromides he found to have little to recommend them, whilst he is altogether opposed to cocaine, which, in at least one instance when used by a dentist, produced all the phenomena peculiar to profound labyrinthine disturbance. Atropine he found to assist in counteracting the psychical depression, which is so marked a symptom of seasickness, and at the same time in regulating some of the incidental circulatory disturbances. The book is a notable contribution to the literature of a subject of universal interest, which has in the past been left too much in the hands of the advertising quack.

[1] *On the Physiology of the Semicircular Canals and their Relation to Seasickness.* By Joseph Byrne, A.M., M.D., LL.B. New York: S. T. Dougherty; London: H. K. Lewis. 1912. (Post 8vo, pp. 578 12s. 6d. net.)

THE "DEAD SPACE" OF THE RESPIRATORY PASSAGES.

A paper by Drs. C. G. Douglas and J. S. Haldane in the current number of the *Journal of Physiology* raises a question of pathological interest which, as they point out, may prove to have clinical importance. The paper is founded on an investigation of the capacity of the air passages under varying physiological conditions, and is concerned especially with variations in the "dead space"—that is, the capacity of the air passages connecting the alveoli of the lung with the air outside the body. It is a dead space so far as respiratory exchange goes, and variations in its capacity are an indication of contraction or dilatation of the bronchi with corresponding changes in the resistance to air flow. General physiological considerations suggested that the maintenance by the smaller bronchi of a certain resistance to air flow is of as much importance for the even distribution of air throughout the lung substance as is the resistance of the arterioles for the proper distribution of blood throughout the body. If these bronchi remained constant in diameter whatever the flow of air, the resistance would either be excessive during hyperpnoea or insufficient during quiet breathing. The results of the experiments showed an extent of variation which seems to have surprised the experimenters, and is certainly very noteworthy. The condition of the subject (Dr. Douglas in all cases) varied from rest in bed to the exertion involved in walking five miles an hour. The dead space increased very strikingly, and was four times as great in the latter as in the former. The increase in the number of respirations was slight and not uniform. The volume of air breathed, nevertheless, was increased by walking at five miles an hour to about eight times, the alveolar ventilation and discharge of CO_2 to about twelve times the resting values. The enormous increase in the volume of air breathed, therefore, was almost entirely due to increase in the depth of each inspiration. The depth increased from 457 c.cm. when resting in bed to 3,145 c.cm. walking at five miles an hour, but the respirations only increased from 16.8 to 19.5 a minute. Even so the breathing was far from being maximal. The authors observe that the local or central reflexes by which the state of contraction or dilatation of the bronchi in various parts of the lung is regulated are not yet understood, though the existence of broncho-dilator as well as broncho-constrictor nerve fibres has been demonstrated by Brodie and Dixon. They think it probable, however, that the regulation is as perfect as that of the arterioles, for failure in the regulation would result in imperfect arterialization of the blood, and probably also in emphysema. Whether besides asthma, in which the bronchi are unusually constricted, there are abnormal conditions of bronchial dilatation also is, they point out, an interesting clinical question.

CHEMICAL CONSTITUTION AND THERAPEUTIC ACTION.

Modern therapeutics is being enriched daily by additions to our knowledge of the relation between the chemical structure of drugs and their action on the body. Two or three years ago we reviewed an interesting work on this subject from the University of Bristol.[1] Another worker from the same university, Dr. Oliver C. M. Davis, writes in the September number of the *Bristol Medico-Chirurgical Journal* on the relationship between toxicity and chemical reactivity in certain benzene derivatives. The toxicity of some substances appears to depend upon the rate at which they are decomposed, but this is not so with others. For instance, acetanilide and phenacetin have, the author has shown, almost identical rates of hydrolysis, but the latter

[1] *The Chemical Basis of Pharmacology.* By Francis Francis, D.Sc., Ph.D., and J. M. Fortescue-Brickdale, M.A., M.D.Oxon. London: Edwin Arnold. 1908. (British Medical Journal, 1908, vol. ii, p. 1187.)

substance is far less toxic than the former. Again, in the case of the toluidines the toxicities are proportional to their chemical affinities, but with the chlorbenzoic acids inversely proportional to these constants. The explanation offered is that toxicity must depend upon three factors: The first is the affinity of the compound for protoplasm—that is, the ease with which the "anchoring group" (which in the case of the toluidines is NH_2) becomes attached to the living molecule. The second is the vigour with which the anchored molecule behaves towards the protoplasm; and the third is the rate at which it gives rise to excretion products. If there is a great affinity between the anchored molecule and the protoplasm the pharmacological action will be correspondingly great, but it will be diminished by any factor which increases the rate of excretion of the drug. The readiness with which a compound reacts with protoplasm may be called its "physiological affinity." The "toxicity constant" might then be expressed by the ratio between the "physiological affinity" and the "excretion constant." The speculative nature of these suggestions is sufficiently obvious, but the facts Dr. Davis brings forward are a contribution to this important, though difficult, subject. It is to investigations along these lines that we owe already some most valuable drugs, such, for instance, as atoxyl and salvarsan.

SHAKESPEARE AND SLEEP.

NOT so long ago critics were practically agreed that Shakespeare never allowed even the shadow of his own personality to show on the mirror which he held up to Nature. Every one knows Matthew Arnold's sonnet:

> Others abide our question; thou art free.
> We ask and ask—Thou smilest and art still
> Out-topping knowledge.

Now it is coming to be seen that, even if Shakespeare did not, as Mr. Frank Harris contends, portray himself in various disguises in many of his characters, we get at least some glimpses of "the man Shakespeare" in the plays. One example of this is the habit of brooding on death, of which there are many examples. In most of us there is what may be called a subsoil water of thought, or it may be feeling, into which the mind, when not occupied with other things, is apt to fail. Long ago it was pointed out by Professor David Masson that when the soul of Shakespeare "swooned into itself" the thought of the sleep of death and what dreams might come in it would rise to the surface. It is scarcely within our province to discuss the supposed self-revelations of the dramatist, but we may be allowed to call attention to a thing on which he dwells with such insistence that we cannot help thinking he gives expression to a personal experience. This is sleep. What poet has described insomnia as Shakespeare has done, not once but over and over again? There is the famous soliloquy of Henry IV beginning—

> How many thousand of my poorest subjects
> Are at this hour asleep! O sleep, O gentle sleep!
> Nature's soft nurse, how have I frighted thee,
> That thou no more wilt weigh my eyelids down,
> And steep my senses in forgetfulness?

When troubles gather round Macbeth, his wife says to him:

> You lack the season of all natures, sleep.

Then there is Macbeth's terrible sob of remorse after the murder:

> Methought I heard a voice cry, Sleep no more!
> Macbeth doth murder sleep, the innocent sleep;
> Sleep that knits up the ravelled sleeve of care,
> The death of each day's life, sore labour's bath,
> Balm of hurt minds, great Nature's second course;
> Chief nourisher in life's feast.

Then like the wail of a lost soul:

> Still it cried, Sleep no more to all the house.
> Glamis hath murdered sleep and therefore Cawdor
> Shall sleep no more. Macbeth shall sleep no more.

Iago, when his poison is working in Othello's spirit, says exultingly:

> Not poppy nor mandragora,
> Nor all the drowsy syrups of the world,
> Shall ever medicine thee to that sweet sleep
> Which thou ow'st yesterday.

In the *Sonnets*, in which we prefer to believe, with Wordsworth, even against Browning, that Shakespeare unlocked his heart, there are several references to the same subject. In the twenty-seventh we have the true note of the worst form of sleeplessness:

> Weary with toil I haste me to my bed,
> The dear repose for limbs with travel tired,
> But then begins a journey in my head
> To work my mind when body's work's expired.

In the next one he says:

> How can I then return in happy plight
> That am debarr'd the benefit of rest?
> When day's oppression is not eased by night,
> But day by night, and night by day oppress'd?

These are but a few instances which might be gathered from the poet's works, in which, speaking of sleep, "he call'd him soft names in many a mused rhyme." In reading medical writings referring to insomnia it is easy for one who knows what it is from his own experience to distinguish between those who bear the scars and those who have never felt the wound. One justly famous and most humane surgeon says that if a man sleeps ill one night he can make up for it the next; we find the explanation of this want of sympathetic insight in his statement that he had only had two sleepless nights in his life. Although Shakespeare is said to have trod the world unguessed at, we hazard the guess from the ever-recurring note of the blessedness of sleep that the "myriad-minded man" who saw into the very depths of human nature by intuition had himself told the weary footsteps of the hours through many a sleepless night.

VOICE TRAINING FOR THE CLERGY.

EVERY ONE knows that an affected intonation is common among the clergy in reading and often in preaching. Its effects on the vocal organs are so characteristic that they are designated by a special name—"clergyman's sore throat." That this is the result of faulty voice production is shown by the fact that the condition is comparatively rare in actors and others who use the voice much more than clergymen. The need of voice training for the clergy has long been felt, and isolated attempts have been made here and there to make it a part of their preparation for the ministry. But no general effort has, as far as we are aware, been made in that direction. The evil is felt by none more keenly than the clergy themselves. We learn with interest, therefore, that a school of voice production has been established at Oxford. A conference was recently held at Christ Church, at which Dr. Scott Holland, Regius Professor of Divinity, presided, and among those present were Sir William Osler and Mr. Ernest Waggett. The object of the meeting was to bring the needs and importance of the school before the public. Mr. Waggett said that the bad speech of the clergy was really a matter for tears. The strain of listening put on hard-working men was quite unfair. He guaranteed that nine men out of ten who spoke with their chins bent towards their chests, leaving the space of an inch between the collar and the back of the neck, would mesmerize the average listener to sleep in twenty minutes. Catarrhal affections were more common in England than in any other part of this hemisphere. When trying to make themselves heard in church the clergy endeavoured to get over the defect by straining their voices. This resulted in further increasing vocal defects, and the more this was so the greater had to be the strain. The expert voice-producer taught them so to use their voice that they could do their ordinary duties without any fatigue. The proper carriage of the

voice and articulation of syllables, which he regarded as essential for the proper equipment of a clergyman, could be taught to an intelligent person in three weeks. Sir William Osler said he did not think there was any voice of the same natural sweetness and softness as the English voice. They wanted the natural softness and natural characteristics of the voice brought out by training, and it was only when persons were young that defects could be successfully overcome. The Master of Pembroke and the Rector of Exeter also spoke, and Dr. Scott Holland, in summing up the discussion, said they had to take to heart what had been said, and then become aware that they had a duty. He asked them to do their best to see that this school of voice production had full support; if so that meeting would not have been held in vain. We note with satisfaction, mingled with some surprise, Sir William Osler's description of the English voice. It is pleasant to know that it sounds sweet and soft to his ears, and this makes it all the more deplorable that it should so often be marred in the utterance. We mumble and swallow our words and distort our vowels in a manner which makes our splendid language sound to the foreigner like a jargon. The reason was long ago given by John Milton in his *Tract on Education* (1644), where he says: "For we Englishmen being farre northerly doe not open our mouthes in the cold air, wide enough to grace a southern tongue, but are observed by all other nations to speak exceeding close and inward; so that to smatter Latin with an English mouth is as ill a hearing as law French." As a matter of fact, according to actual tests that have been made, the Englishman's voice does not carry nearly so far as that of the Italian. Doubtless a right system of voice production would do much to remedy this defect, and we hail the institution of the Oxford school as a step in this direction.

PHARMACOLOGY AT OXFORD.

The new Department of Pharmacology was opened on Saturday, November 9th, when the Reader in Pharmacology, Dr. J. A. Gunn, delivered an inaugural address. A distinguished company attended, which included the Vice-Chancellor, several heads of houses, graduates in medicine, and resident members of the university, as well as the local members of the medical profession. The Regius Professor, in introducing Dr. Gunn, briefly sketched the history of pharmacology in the university, and enumerated the previous teachers in the subject, special mention being made of the services rendered by Dr. Smith Jerome, who had been lecturer for ten years. Dr. Gunn took as the title of his lecture, "The New Pharmacology." He referred to the antiquity of the use of drugs not only as remedies but also as lethal weapons, such as arrow poisons, and in the ordeal. He inferred that considerable accuracy in the dosage and knowledge of these drugs must have been acquired by observation of their effects. He mentioned that the skin of toads had been used in primitive times for the relief of dropsy, and that recently a body similar to digitalis had been isolated from it by Abel, and that its therapeutic effect was again being tried on patients. It behoved pharmacologists, therefore, to look with respect upon the ancient uses of crude drugs. In the nineteenth century knowledge of the action of drugs became more precise, and in these investigations other actions of great importance were discovered, such as the action of physostigmine on the pupil. In the twentieth century inquiry was specially directed to specific therapeutics; quinine for malaria and mercury for syphilis were specific remedies discovered by chance. A tribute was paid to the brilliant work of Ehrlich in this field. Finally, he gave an example in the recent work of Cushny and Mackenzie on digitalis of the great results that may be expected in the future when an expert pharmacologist works in connexion with a clinician of experience. In thanking Dr. Gunn for his lecture, the Regius Professor reminded the Vice-Chancellor (the Principal of Brasenose) that Withering's monograph on the use of digitalis was inspired by the results of its use on a previous holder of his office. An adjournment was then made to inspect the new pharmacological laboratory, which is situated in the front of the main building of the museum, and has been fitted up with all modern requirements. Tea was served in an adjoining department, where editions of the work of Dioscorides on materia medica were displayed.

THE INSURANCE ACT AND THE PROMOTION OF TEMPERANCE.

Sir Alfred Pearce Gould, in the tenth Lees and Raper Memorial Lecture which he delivered in Norwich a few weeks ago, suggested[1] that the National Insurance Act should be made a means of testing the effects of alcoholic drinks upon health and longevity. Such a test would be free from the objections sometimes taken to the sources of information at present available. The knowledge that assured abstainers are longer lived than non-abstainers, and that the mortality and sickness rates in abstaining friendly societies are lower than those of the non-abstaining societies is derived from what may be described, without disparaging the accuracy or conscientiousness of the records, as temperance sources. There are two camps, each believing that it alone has the truth. Sir Alfred Pearce Gould suggests that in any amending Act there should be a clause to group the members of approved societies into abstainers and non-abstainers, keeping separate records of each section. "Let us apply it with a bold hand," he says, "in the matter of alcohol to the insured. It will certainly elicit the truth here as elsewhere, and that is all we want. Brewers and distillers ought to join us in asking the Government to give us the opportunity of making this great experiment." Applied to 14 millions of people, a test such as this would in a few years show whether the truth was with those who advocate or with those who condemn the use of alcohol. Sir Alfred Pearce Gould believes that alcohol increases susceptibility to and the virulence of cancer. In alluding to the lower premiums accident assurance companies charge abstainers, he omits to state that it is the more rapid recovery of abstainers from injuries, as well as their comparative immunity from accident, which enables the companies to make the reduction.

TRAFFIC PROBLEMS AND TOWN NEEDS.

"The man who builds a house," says Mr. Paul Waterhouse,[2] "even if he only spends three hundred pounds upon it, takes the precaution of spending three hundred shillings on an architect and a plan; but the town which is worth a hundred thousand times as much, perhaps a million times as much, is built by random accretion, by accident, by whim, by error." Here, in a sentence, we have the genesis of the uncomeliness of many towns, with their incongruous groups of buildings and narrow, irregular streets. To widen narrow streets is expensive, is often to treat a symptom rather than touch the disease, and where streets intersect increases the volume of the transverse streams of traffic. Mr. Waterhouse proposes to prevent traffic blocks at such crossings by carrying one street over the other on arches and by "gyratory crossings." The gyratory crossing is a circle as at Oxford Circus, but, instead of driving across it, the streams of traffic circulate at its circumference. This remedy for traffic stagnation requires little structural

[1] *The Best Way of Promoting Temperance Reform.* The Tenth Lees and Raper Memorial Lecture by Sir Alfred Pearce Gould, K.C.V.O., M.S., F.R.C.S. London: Macmillan and Co., Limited. (16 pp.; 4d.)

[2] *Old Towns and New Needs: also the Town Extension Plan.* The Warburton Lectures for 1912. By Paul Waterhouse, M.A., and Raymond Unwin, F.R.I.B.A. Manchester: The University Press. (Fcap. 4to, pp. 62; figs. 9. Price 1s. net.)

alterations, and Oxford Circus seems a good spot for testing its merits and its applicability to the ever-growing needs of London's traffic. Every town ought to have a well thought out extension plan, so as to avoid otherwise inevitable, expensive, and piece-meal makeshifts. Mr. Raymond Unwin shows that to huddle buildings into small spaces is economically unsound. If 340 houses are erected on an area of 10 acres, each plot measures 83½ square yards for building and back yard, and costs 10s. 4½d. a square yard; if, however, only 152 houses be built on the same area, each plot contains 261 square yards at a cost of 4s. 9¼d. the yard. A weekly ground rent of 8d. is paid for the small plot, one of 11¾d. for the large plot, with its ample space for playgrounds, tennis courts, bowling-greens, and drying-grounds. If two shops offered marbles at eighty-three for 8d. and 261 for 11¾d., the youngest player would know which was the better offer. Owing to the greater area of land required by reducing the number of houses to the acre from thirty-four to fifteen, the owners of the land, as a whole, would receive the same return in increment, after allowing for the loss of agricultural value, and this would reduce the ground rent of the larger plots from 11¾d. to 8½d., or only a halfpenny more than that of the crowded plots. When houses are crowded together, there is a disproportionate provision of roads—one of the most expensive and least advantageous forms of open space. Much is hoped from the Town Planning Act. Garden cities have proved that town planning is commercially, hygienically, and aesthetically successful, eradicates slums, and provides dwellings fit for a race which lives, not by bread alone, but needs recreation, culture, and an outlet for spiritual aspirations.

INCOME TAX ALLOWANCE FOR DEPRECIATION OF MOTOR CARS.

RECENT correspondence has shown that difficulties still arise in obtaining the proper income tax allowance due under this head. The Inland Revenue authorities adhere to the position that no annual allowance for the depreciation in value of a car used for the purpose of a profession, but the Board of Inland Revenue have clearly laid it down that as an alternative the cost of renewal of the car is admissible as a professional expense in the year in which it is incurred. In considering the question of claiming this expense it should be remembered that an allowance for cost of renewal will be due whether the old car be replaced by a more expensive car or by one less expensive. It will, however, only be possible to claim so much of the expenditure as represents a repetition of the cost of the original car. There is no guide in the Income Tax Acts to fix the proper calculation of the cost of renewal in cases where the old car is sold and the sum realized is put towards the cost of the new car, but the official view is that the "cost" of the old car should be regarded as the difference between the purchase price and the sum realized when it is sold. The effect of this view is that when a car that originally cost £400 is replaced by one costing £600, the old car being sold for £100, the renewal allowance will be £300 only. In our opinion the proper method of arriving at the amount of the expense incurred by replacing the old car is to consider the actual cost of renewal as being the sum actually expended in connexion with the change, that is, £600 less the £100 obtained for the old car. The allowance on this principle would be £400, since no expenditure beyond the original cost is regarded as made solely for the purpose of renewal. As the former method of calculation has, in fact, the sanction of the Board of Inland Revenue, although we believe it to be not invariably adopted, it will be well to see that the surveyor of taxes does not object to the method in cases where it operates in favour of the practitioner, a position that arises when the new car costs less than the car it replaces. Thus, if in our example the price of the new car were £300, the whole of this sum should be claimed as cost of renewal, notwithstanding that a sum of £100 towards the expense may have been obtained by disposal of the original car. According to the Revenue view, the "cost" of the old car should be taken to have been £400 less £100, and the sum spent on renewal £300.

SCHOOL CHILDREN AND MEDICAL INSPECTION.

WITHIN the next few days the London County Council will issue the report of the Medical Officer (Education) for 1911. The report is memorable chiefly from the opening sentences, in which Dr. James Kerr writes: "With this report the series for which I have been responsible during the past ten years is concluded. An attempt has been made to lay the foundations of school hygiene, as a study of natural interest and value, on the basis of problems worked out on scientific lines by the staff of the department." Dr. Kerr's work, briefly and modestly outlined in these few words, has been of national importance. Long recognized as a pioneer in the subject of school hygiene, he has overcome his opponents by converting them to be his supporters and has had the satisfaction of being able to hand over the medical treatment of school children in the London area from the education to the medical department as a going concern. Dr. Kerr rightly emphasizes in his report that the knowledge gained of school hygiene is far ahead of practice, and contends that it is necessary to look beyond the school to the home. The study of school children in the schools has been valuable in helping to demonstrate that among the evident wants of the community are room to live, increased space for play, food, and opportunities for cleanliness. He looks forward to the time when a statutory limit should be assigned to the number of people who may live on a certain area of land, and when for each defined area buildings should only be allowed to cover a small proportion of the surface. While the statement is not in any sense novel, it is of value that it has been printed in the report, for it points the way to a development in the direction of improving the nurture of the people.

THE next session of the General Medical Council will begin on Tuesday, November 26th, when the President (Sir Donald MacAlister, K.C.B.) will take the chair at 2 p.m.

Medical Notes in Parliament.

National Insurance Scheme.

Medical Benefit.

SIR PHILIP MAGNUS asked the Prime Minister on November 7th whether he would afford, at an early date, an opportunity to the House for the discussion of the question of the increased Treasury grant to be set aside for medical benefit, and of the terms suggested for the employment and the remuneration of doctors taking service under the National Insurance Act. The Prime Minister replied that he feared he was not in a position to make any statement at present. Sir Philip Magnus asked if an opportunity for the discussion of the question could be afforded prior to the Representative Meeting of the doctors to be held this month. The Prime Minister said he would see if that was possible.

Mr. Hudson asked the Chancellor of the Exchequer on November 7th whether, in the case of payment to doctors under the National Insurance Act of 7s. per person for attendance and 1s. 6d. for drugs, either amount would in any case be liable to deduction. Mr. Masterman, in reply, said that it was intended that the 7s.—namely, the 6s. 6d. per insured person for medical attendance and treatment under medical benefit and the 6d. for the treatment of tuberculosis, should be applied solely to remuneration of medical practitioners on the panel; and that the

1s. 6d. should be applied solely to meeting the cost of drugs and appliances, a further 6d. being divisible between chemist and doctor, according to the cost of the drugs ordered. Neither amount would be subject to deduction for any other purpose.

Mr. Chiozza Money asked the Secretary to the Treasury if he would state the actuarial value to a male person 16 years of age of the additional grant to doctors for medical benefit in connexion with the National Insurance Act? Mr. Masterman said that the actuarial value of the additional grant it was proposed to make from the Exchequer for medical benefit was for a boy of 16, £3 0s. 3d.

Mr. Glazebrook asked the Chancellor of the Exchequer on November 8th whether the system of payment for work done, under which domiciliary treatment of tuberculosis was undertaken by the British Medical Association, was affected by the arrangements announced by him in his speech to the Advisory Committee; whether the system of capitation payment was to be substituted; and if so, whether the capitation payment per insured person would cover the domiciliary treatment of tuberculous dependants. Mr. Masterman replied that the temporary arrangements made between the Insurance Committees and the doctors in certain areas to which he understood reference was made would not be affected during the period ending January 14th. The answer to the third part of the question was in the negative.

On November 11th Sir Philip Magnus asked by what arrangement an insured person, temporarily resident in another county than that in which he ordinarily resided or in another part of the same county, and taken suddenly ill, would be able to secure medical benefit under the National Insurance Act; and whether a qualified medical practitioner not on any panel would be recognized as able to give a certificate? Mr. Masterman replied that the arrangements referred to in the first paragraph of the question would be found in the Provisional Regulations relating to medical benefit, especially paragraphs 44 and 45. He was not clear as to what certificates the hon. member referred to in the second paragraph of his question. Sir Philip Magnus: Is that in the Regulations? Mr. Masterman: Regulations, paragraphs 44 and 45. They are laid before the House at present.

Sanatorium Benefit.

Mr. Masterman, in reply to Mr. Douglas Hall, said that he was informed that thirty-five applications had been received by the Isle of Wight Insurance Committee, and that arrangements were being made for the treatment of such cases. The Insurance Commissioners were communicating further with the committee with reference to the arrangements.

Mr. C. Bathurst asked the Chancellor of the Exchequer on November 11th whether 7½d. only per insured person was now available to county councils for the provision of sanatorium benefit after the deduction of 1½d. for administration. Mr. Masterman said that the whole sum of 1s. 3d. was available for sanatorium benefit, of which 6d. could be allocated to domiciliary treatment of patients recommended for such benefit. The proportion of the sum to be allotted to expenses of administration was not yet determined.

Mr. C. Bathurst further asked the Chancellor of the Exchequer whether it was now proposed to provide sanatorium treatment for all poor persons suffering from tuberculosis, one-fifth only of whom were insured persons, under the National Insurance Act; and, if so, whether the whole or, alternately, one-half of the cost involved would be defrayed out of the Imperial Exchequer. Mr. Lloyd George replied that the statement in the question was misleading. The number of insured persons and their dependants in a short time would probably include more than four-fifths of the total number of persons suffering from tuberculosis in this country. All these might receive treatment under the National Insurance Act. The Government had promised assistance to the local authorities in dealing with the treatment of tuberculosis amongst the remainder of the population, and the exact form of that assistance was still under consideration with the representatives of those authorities.

In reply to Mr. John Walsh, on November 12th, Mr. Mastermann said that he was unable to distinguish the exact sum received in respect of insured persons, towards the cost of the several benefits of the Insurance Act, in the county and city of Cork from those received in respect of other insured persons in Ireland. Nine applicants from this district were receiving treatment for tuberculosis, eight of them in sanatoriums. The exact cost of their treatment could not yet be stated, as it was still being continued. No applicant had been refused benefit.

Mr. Astor asked the President of the Local Government Board on November 12th whether he was aware that several hundred beds owned by the Metropolitan Asylums Board now stood empty; and whether it was proposed to take steps to make these beds available for the institutional treatment of consumptive insured persons in London? Mr. Burns replied that negotiations were, he understood, in progress with a view to seeing whether any of the accommodation of the Metropolitan Asylums Board could be made available for the institutional treatment of insured persons suffering from tuberculosis.

Mr. Astor further asked the total number of the separate institutions owned by the Metropolitan Asylums Board; the total number of beds in such institutions; and the maximum, minimum, and average area of land unoccupied by buildings attached to these institutions. Mr. Burns said that he was informed that there were twenty-eight separate institutions now under the control of the Metropolitan Asylums Board, which afforded a total accommodation of 20,181 beds. Without resorting to actual measurements the area of unoccupied land could not readily be given.

Mileage.

Mr. C. Bathurst asked the Chancellor of the Exchequer on November 6th whether he realized that the cost incurred by a medical practitioner in visiting his patients over a wide agricultural area with a scattered rural population, such as Salisbury Plain or the Cotswold Hills, far exceeded that incurred by an urban practitioner; and whether, under such circumstances, he would more nearly equalize the doctors' remuneration for their services under the National Insurance Act by granting a special mileage allowance to the former. Mr. Masterman, in reply, said that, as he had previously pointed out, there was no reason why the total sum to be provided for medical remuneration should not be distributed amongst the doctors, with the co-operation of the medical profession, in such a manner as to equalize the remuneration for the services of town and country practitioners.

Captain Murray asked on November 7th what arrangements it was proposed to make to safeguard the interests of the country doctors in Scotland in regard to mileage allowance. Mr. Masterman said that the method of distribution of the amount available for medical remuneration was largely a matter for the medical profestion themselves, and the Government would favourabiy consider any proposals which commanded the general support of the profession. He added that the regulations provided for the adoption of any method of remuneration which might be considered desirable for any county in Scotland where, owing to sparseness of population, difficulties of communication, or other special circumstances, the normal methods of remuneration appeared to be unsuitable.

Certificates.

Mr. Hudson asked on November 7th whether doctors responsible for attending members of approved societies under the National Insurance Act would be required to issue certificates to the societies for such insured persons. Mr. Masterman replied that practitioners attending persons insured under the Act would be required, in consideration of the remuneration received under the new grant which Parliament was to be asked to make, to give to insured persons attended by them the certificates required for the administration of sickness and disablement benefit under the Act.

Assistants.

Mr. Hudson asked on November 7th whether, under the National Insurance Act, doctors chosen by insured persons could depute their assistants to attend to their patients. Mr. Masterman, in reply, said that when a practitioner on the panel was precluded by urgency of other professional duties, absence from home, or other reasonable cause, from giving personal attendance to an insured person under his care, he might depute an assistant to act on his behalf.

Medical Assistants.

Sir Philip Magnus, on November 11th, asked whether a medical practitioner, accepting service under the National Insurance Act, was permitted to have a qualified assistant who was not a partner, and to employ such an assistant in visiting some of the cases of illness that might arise within the thirty mile area over which his contract practice, under Section 3 of Part I of conditions of service for practitioners, was required to extend. Mr. Masterman replied: "Yes, in the circumstances, but only in the circumstances, described in paragraph 6 of Part I of the First Schedule to the Regulations recently issued relating to the administration of medical benefit under the Act."

Allowance for Drugs.

Mr. Bridgeman asked on November 11th what processes of diagnosis of blood, sputum, etc., would be included in the list of those for which payment was to be covered by the allowance for drugs. Mr. Masterman replied that such methods of diagnosis as were presumably referred to in the question would, so far as employed, come under the heading of medical treatment and not of drugs. It was not possible to state in advance what particular methods would be employed by different practitioners, but, as already stated, practitioners on the panel would not be required themselves to undertake work demanding skill and experience beyond that which the ordinary practitioner could properly be expected to possess.

Medical Education.

On November 11th Mr. Moore asked if the General Medical Council would continue to exercise any supervision in Ireland over medical education or professional conduct if the Government of Ireland Bill should become law. The Prime Minister replied: "Yes, subject to any future Irish legislation."

Mr. Moore further asked if they might have a Nationalist standard for medical education in Ireland. The Prime Minister: If the Irish Legislature so determine.

Vaccination.

Vaccination Officers' Fees.—On November 6th Mr Snowden asked the President of the Local Government Board whether any vaccination officer is paid a fee for recording the date of the statutory declaration; and if so, was the fee the same in amount for recording the vaccination certificate. Mr. Burns: So far as I am aware, the answer is in the negative. Mr. Snowden also asked if the Local Government Board had written to the Bristol Guardians requesting them to consider again an application from their vaccination officers for extra remuneration in consequence of their losses owing to increased number of exemptions; whether the guardians had declined to adopt the suggestion, and whether, after further correspondence, they were prepared to pay to the two whole-time vaccination officers a salary suggested by the Local Government Board. Mr. Burns said that after discussing the matter with the chairman and clerk of the guardians he had decided that the two officers should receive a salary of £150 and £130 per annum.

Appointment of a Deputy.—Answering a question by Mr. Pointer regarding the appointment of Dr. O'Hagan as deputy during the absence of one of the Croydon public vaccinators on leave of absence for six months, Mr. Burns said he was aware of the facts mentioned. The two cases of abnormal results alleged to have followed vaccinations by Dr. O'Hagan had been investigated by an inspector, and in neither case did he consider any blame attached to Dr. O'Hagan.

"Doubtful" Vaccination.—Mr. Burns, replying to a question by Mr. Sutton, said that in those cases in which no information as to the vaccinal condition was given in the certificate of death had hitherto been grouped under the heading "doubtful." But a modification of this arrangement had already been under consideration and would be adopted in future.

Vaccinal Condition.—On October 29th Mr. McKinnon Wood, in answer to a question by Mr. Black, said it had not been the practice of the Local Government Board (Scotland) to publish information regarding the vaccinal condition of small-pox patients, but it would be given in future reports.

Small-pox at Kirkcaldy.—Mr. McKinnon Wood, replying to Mr. Wilkie, gave particulars of the ages and vaccinal condition of the cases of small-pox in Kirkcaldy up to October 24th. There were 14 vaccinated cases, ranging from 11 to 57 years of age; 2 "doubtful" cases 47 and 46 years respectively; 3 unvaccinated cases 17, 51, and 47 years respectively; 5 other vaccinated cases were so mild as to be undetected until undoubted cases of small-pox occurred in the same family. There had been 7 deaths—vaccinated, ages 23, 33, and 38 years; doubtful, 47 and 46 years; unvaccinated, 47 years. One child infected before birth—vaccinated the second day—died when 7 days old. Two of the deaths among the vaccinated were of women in childbirth.

Pure Bread.—In reply to Mr. Charles Bathurst, who asked the President of the Local Government Board when he proposed to introduce a pure bread bill, or to take any other action on the reports by Drs. Hamill and Monier-Williams in reference to the bleaching and adulteration of flour, Mr. Burns said that the bill was in preparation, that it would be general in character and not confined to bread. In reply to another question by Mr. Charles Bathurst, Mr. Burns said that no experimental investigations had been made by his department into the effect upon the teeth and upon the nutritive value of bread, and the removal of the ferments from flour in the process of roller milling. In view of the minuteness of the changes which took place in flour as the result of the action of ferments contained in it, he was advised that there would be great difficulties in making any satisfactory investigation by means at present available of the effect, if any, on nutrition generally or on the condition of the teeth produced by the action of ferments in flour. The matter was not one which called for consideration in connexion with the question of adulteration and sophistication of flour and flour products.

University of London (Site).—Mr. Barnston asked the President of the Board of Education whether the offer of the Board to receive a deputation on the question of the future site of King's College would include the intimately related question of a site for the University of London. Mr. Pease replied that the Senate of the University had not suggested that the question of a site for the University of London should be raised by the deputation. If, however, they desired to make any statement on the subject, the Board would, of course, be prepared to receive it.

The Peamount Sanatorium.—In reply to questions, Mr. Birrell said on November 7th that the grant to the Women's National Health Association, which was arranged at a conference of representatives of the Treasury, the Irish Local Government Board, and Insurance Commissioners, had been mostly spent. Peamount had been certified by several experts as suitable for a sanatorium, and the fear that it would be a source of danger to the residents in the neighbourhood was at variance with the best medical opinion, and the difficulty about the water supply had been overcome.

Hague Opium Convention.—Dr. Chapple asked on November 12th whether the Government had ratified the Hague Opium Convention, and whether it had any information regarding ratification by any of the other Powers. Sir E. Grey said that the reply to both points was in the negative. For the reasons of the delay in ratifying he referred to Articles 22 and 23 of the Convention. Except in the now unlikely event of all the Powers signing the Convention and supplementary protocol before December 31st, 1912, ratification could in no case take place until after that date. He hoped to lay the report of the British delegates on the table in about a fortnight.

AT a meeting of the Royal Statistical Society to be held on Tuesday next, November 19th, at the rooms of the Royal Society of Arts, John Street, Adelphi, W.C., a paper will be read by Dr. Dudfield, entitled "Still-births in Relation to Infantile Mortality." The paper will deal with the report of a special committee appointed by the council of the Royal Statistical Society to inquire into the systems adopted in different countries for the registration of births (including still-births) and deaths, with reference to infantile mortality.

Ireland.

[FROM OUR SPECIAL CORRESPONDENTS.]

ULSTER MEDICAL SOCIETY.

THE opening meeting of the Ulster Medical Society was held in the Medical Institute, Belfast, on November 7th. The outgoing president, Dr. McKisack, occupied the chair, and, after the minutes had been read, introduced the new president, Richard Whytock Leslie, M.D., LL.D., of Strandtown, Belfast. Dr. Leslie, in his opening address, referred to the loss the society and the profession had sustained in the deaths of Dr. H. Whitaker, formerly medical superintendent officer of health for Belfast, and Lieutenant-Colonel McFarland, both ex-presidents of the society; Dr. Park, formerly coroner for North Down, and Dr. James S. Dickey, whose early death all so deeply deplored. He then touched upon some of the numerous questions that had interested the profession during the past year, and said that no offer with regard to the Insurance Act should be accepted without the most careful scrutiny. Dr. Leslie finally turned to the results of his experience as medical officer to the Campbell College, one of the largest secondary educational schools in Ireland, which was conducted on the lines of the large boarding schools of England. Several tables of statistics illustrated the address, and many interesting points were demonstrated.

Professor Lindsay moved a hearty vote of thanks to Dr. McKisack for his conduct in the chair and his services to the society during the past year, and to the president (Dr. Leslie) for his most interesting and instructive opening address. This was seconded by Professor Sir William Whitla, and passed by acclamation.

Dr. McKisack and Dr. Leslie returned thanks. Tea and coffee were provided by the new president.

TRAINING OF TUBERCULOSIS OFFICERS.

One of the qualifications required by the Local Government Board for candidates for the post of tuberculosis officer appointed by the county councils is a six months' post graduate course of instruction in the diagnosis and treatment of tuberculosis. In July a considerable number of medical men applied to the Allan Ryan Home and Collier Dispensary in Dublin for a course of instruction, and were given a fortnight's course, for which a certificate was obtained. These institutions found that a six months' course of instruction was more than they could conveniently undertake, and therefore asked the ten general hospitals in Dublin which are recognized by the colleges and governing bodies for clinical teaching to combine with them in giving a complete six months' course. At present a decision has not been arrived at, but the clinical hospitals have under consideration a scheme to give instruction in tuberculosis work if the Local Government Board will accept their certificate as a necessary part of the six months' course. In the mean time, however, the Local Government Board has accepted a scheme for a six months' course at the Allan Ryan Home and Collier Dispensary alone. It is computed that there will be about forty of these appointments to be filled, and a sufficient number of medical men to fill about 75 per cent. of these posts have already entered their names at these institutions.

PRESENTATION TO PROFESSOR DIXON.

Professor A. Francis Dixon, to whose initiative was due the recent bicentenary celebration of the School of Physic, Trinity College, Dublin, and to whose ability and untiring energy the event owed so much of its marked success, was presented on Wednesday, November 6th, with a study timepiece bearing the following inscription:

> To Professor A. Francis Dixon, Sc.D., from his colleagues in the Medical School of Trinity College, Dublin, as a token of their cordial appreciation of the ability and energy which contributed so largely to the success of recent Bicentenary Celebration.

The presentation was made by Dr. James Little, Regius Professor of Physic, who paid a well-merited tribute to Professor Dixon as the moving spirit in the whole proceedings, and to the skill and tact which he brought to bear throughout.

IRISH WORKHOUSE ASSOCIATION.

At a meeting of the Executive Committee of the Irish Workhouse Association, held in Dublin last week, the following resolution was unanimously adopted, on the motion of Mr. R. R. Leeper, F.R.C.S.I., seconded by Dr. Katharine Maguire. It was agreed to forward copies to the Chief Secretary and the Irish members of Parliament, and to the Vice-President of the Local Government Board of Ireland:

> Having regard to the report of the Royal Commission on the Care and Control of the Feeble-minded, which shows that in Ireland in 1906 there were 25,415 mentally defective persons not provided for in asylums, of whom 66.06 per cent. were in need of immediate provision, as against 44,045 of mentally defective persons in England and Wales, and 34.57 per cent. in Scotland, we are strongly of opinion that this valuable measure, the Mental Deficiency Bill, now before the House of Commons, should be made applicable to Ireland.

Scotland.

[FROM OUR SPECIAL CORRESPONDENTS.]

DYSENTERY IN GLASGOW.

IN his fortnightly report Dr. A. K. Chalmers, medical officer of health for Glasgow, directs special attention to notes prepared by his assistant, Dr. Wright, regarding the occurrence of two groups of cases of dysentery and one isolated case in Glasgow. In the first group four members of one family residing on the south side of the city were removed to Ruchill Hospital on September 12th, and two days later another sister developed the disease and was removed to hospital. It was learnt that two French ketches had discharged a cargo of onions during July and August at the dock close to where the family resided. The boy who first sickened was stated to have occasionally frequented the docks, and may thus have become infected. He died in hospital on September 15th. In the second group all the members of one family (six in number) were affected and were removed from a two-apartment house in Bellgrove, about two miles from the docks. In this case exhaustive inquiry into the possible source of infection had negative results.

COATHILL FEVER HOSPITAL INQUIRY.

On November 1st the Local Government Board issued its report on the recent inquiry into the administration of Coathill Fever Hospital, Coatbridge, regarding which members of the Town Council had made charges which involved the medical officer, matron, and members of the nursing staff. The report is a complete vindication of the hospital staff. The report deals at some length with Bailie Lindsay's relations to the various complaints, etc., and the Board states that in their view much of the trouble that has arisen has been due to his conduct. With regard to Matron Stenhouse, the report says that in the view of the Local Government Board the local authority acted hastily and harshly, and would be well advised on all future occasions of this kind to give officials due notice of such serious complainst against them. As to other matters the report shows that there is no evidence that any members of the staff of the hospital or any patient had been intoxicated at any time. There are, however, grounds for the belief that on occasion alcohol was somewhat freely partaken of at the hospital by members of the Committee, but the Board desires to state that they find absolutely no grounds for rumours as to irregularities and improprieties having taken place at the hospital. As to the allegation against the administration of the hospital made by Councillors Colt and Agnew at the meeting of the Town Council on February 29th, the report shows that these gentlemen failed to adduce proof or furnish any substantial basis for the accusations which they had made. The Board recommends that no alcoholic liquor should be kept at the hospital for the use of visitors or members of Committee.

GLASGOW NEW CENTRAL DISPENSARY.

The Lord Provost formally opened the new Central Dispensary buildings at Richmond Street, consisting of three flats with a roof garden. Provision is made for an out-patient department, medical and surgical wards, an operating theatre with sterilizing and anaesthetic rooms adjoining, and other adjuncts. It is intended to develop specially an orthopaedic department.

England and Wales.

[FROM OUR SPECIAL CORRESPONDENTS.]

MANCHESTER AND DISTRICT.

THE LANCASHIRE COUNTY COUNCIL AND THE TREATMENT OF TUBERCULOSIS.

CONSIDERABLE delay has taken place in the area of the Lancashire County Council in making arrangements for the treatment of tuberculosis, and even yet no definite plans have been published.

At the meeting of the county council on November 7th the chairman of the Public Health Committee stated that the committee had recommended the county council to undertake to provide sanatorium benefit for all persons suffering from tuberculosis within their administrative area, so far as the expenditure could not be met at the expense of the Lancashire Insurance Committee or by the contributions of the patients themselves. That recommendation was made, however, on the assumption that the Insurance Committee would have supplied to them a fund calculated at the rate of 1s. 3d. per head of the insured persons, and estimated to amount to £32,000 or £33,000 per annum, which would be sufficient to pay in full for the number of insured persons requiring treatment in sanatoriums and not less than one-third of the cost of the dispensaries, so as to leave £9,000 or £10,000 for expenditure upon domiciliary treatment. The recent announcement of the Chancellor of the Exchequer that out of the 1s. 3d. per head 6d. was to be specially appropriated to an annual fund to be distributed among the doctors and chemists for domiciliary treatment, would prevent the Insurance Committee from paying their full share of the cost of the dispensaries and of the cost of treating insured persons in sanatoriums. The committee proposed to substitute for the original undertaking a more specific resolution, clearly showing that the undertaking was given subject to the conditions not being altered in a manner that would throw increased burdens on the county ratepayers.

The council, after a brief discussion, decided to undertake to provide sanatorium benefit for all persons suffering from pulmonary tuberculosis within its area, subject to the following conditions: (1) That the Government contributes three-fifths of any capital expenditure that may be incurred on sanatoriums (such contribution not to exceed £90 per bed), and four-fifths of the capital expenditure on dispensaries. (2) That the Lancashire Insurance Committee pay the county council their proper proportion, but not less than one-third of the annual cost of maintaining and administering the dispensaries. (3) That the Lancashire Insurance Committee undertake to use for insured persons the institutional accommodation provided by the county council when there is vacant accommodation, and to pay the full charge for each patient sent by their order so far as their funds will extend. (4) That the annual income of the Lancashire Insurance Committee for sanatorium benefit is not reduced below that provided for by the National Insurance Act, 1911. (5) That the county council shall not be liable to make up any deficiency in the funds of the Lancashire Insurance Committee to meet the full charge for persons sent by their order for institutional treatment, if such deficiency is caused by the expenditure of that committee on any purpose other than dispensaries. (6) That the Government guarantee to pay annually or half-yearly one-half of the annual expenditure incurred by the county council in carrying out this undertaking.

If these conditions were approved by the Local Government Board, the Health Committee was authorized to establish dispensaries; to appoint three tuberculosis officers at a salary of £500 and not more than eight assistant officers at a salary of £300; and to agree with the Insurance Committee as to their proportionate shares of the cost. The Health Committee was also authorized to make arrangements with the county boroughs for co-operation in the provision of dispensaries and sanatoriums. Pending the consideration of the scheme by the Local Government Board, it was resolved to appoint one tuberculosis officer at a salary of £500 and two at £300 each.

As a large number of the Divisions of the British Medical Association in Lancashire have members residing or practising in the county area as well as in their respective town areas, a good deal of overlapping exists, which can only be met by practically all the Divisions, in addition to their respective local Medical Committees, electing representatives to serve on a County Medical Committee, and steps are now being taken with this object.

THE SALFORD ROYAL HOSPITAL.

The most remarkable feature recorded in the annual report of the Salford Royal Hospital is the large increase in the number of in-patients, which reached the total of 2,415, as compared with 1,464 in the previous year. This is explained by the fact that the extension of the hospital was opened last year, though from lack of funds 35 of the additional beds have had to be kept unoccupied, in spite of constant applications for admission. In addition to the above, the hospital, with its Pendleton Branch, gave treatment to 11,454 out-patients, 14,838 accidents, and 2,101 home patients. The chairman of the annual meeting, Sir William Mather, stated that the total cost of the extensions was £66,429, and of this sum £10,500 remained to be raised. There was a deficit also on the annual income of about £950. On the urgent request of the medical board the committee had decided to provide an electro-therapeutic department, and, including the cost of this, it appeared that the sum of about £12,000 was necessary to pay off the liabilities of the hospital. The chairman generously offered to guarantee £5,000 towards this amount, to be paid at the end of the year, on condition that another £5,000 was raised from other sources, or if the full amount of £5,000 was not raised he guaranteed an amount equal to the fund collected. He had a strong feeling that a democratic country could not long leave the hospitals in the unhappy condition in which they had been in the last ten or fifteen years. It was not at all necessary to interfere with private charity, but a grant from the Exchequer for the purpose of freeing hospitals from debt would be a useful application of public money. He did not agree with the opinion that the Insurance Act would play havoc with the finances of hospitals. After the meeting, Sir William Mather unveiled a bronze tablet placed in the hospital in memory of the late Dr. J. Dixon Mann, who was first appointed physician in 1882, and remained on the active staff until his death last year. For twenty-five years Dr. Mann was the lecturer to the nurses of the hospital, and the help he gave them was so highly appreciated that the past and present nurses have decided to erect a separate memorial at their own cost.

LIVERPOOL.

HEALTH OF THE CITY.

IT is gratifying to note that the death-rate in the city during the current municipal year is the lowest on record, the general rate being 17.3 per 1,000 of the population, against 17.9 two years ago, the decline being most marked in infant mortality, the rate of which was 120 per 1,000 births, the lowest on record, the average within the last five years being 144. The diminution in typhoid still continues, the deaths being only 14, of which 6 were imported cases. The deaths from scarlet fever were 68, again the lowest recorded. The same could not be said either of measles or whooping-cough, although the deaths were fewer than last year.

In reference to the abolition of slums, the houses dealt with during the current municipal year of the Liverpool Housing Committee numbered 953, of which 747 were included in proposed new schemes. Closing and demolition orders had been made in respect to 206 houses, 20 houses had been demolished, 10 improved and rendered sanitary, and the remainder awaited demolition or improvement. The total dwellings were now 2,662, of which 2,109 were restricted for the dispossessed. The total cost for housing and demolition to December 31st last was £1,095,131 9s. 7d., the net annual charge for interest and sinking fund being £37,094 9s. 6d., equal to 2½d. in the £ on the rates. Nine new schemes are now in hand, involving expenditure of about £280,000 in the acquisition of sites and dwellings, the demolition of 747 houses, and the displacement of 2,468 persons. It is intended to provide accommodation for those persons of

the working class who will be displaced by the scheme. There still remain about 3,000 insanitary houses to be dealt with, these being of the worst type, all being back to back, without through ventilation and separate sanitary conveniences.

The principal feature of the work during the past year was the opening of the Bevington Street scheme dwellings by the Countess of Derby in June last. A large deputation from Germany visited that area in August last, followed by another in September, under the auspices of the National Town-planning Council. Both deputations were unanimous in their approval. The last-named association was promoting a vigorous campaign to more speedily do away with slumdom, and intended to point to Liverpool as an example.

LONDON.

London County Council.

Ambulance Service for the Metropolis.

An urgency report by the General Purposes Committee was submitted to the London County Council during its proceedings on November 12th, dealing with the question of the provision of an ambulance service for London, authority for the establishment of such a service having been conferred on the Council by the Metropolitan Ambulances Act, 1909.

The General Purposes Committee observed that the powers conferred upon the Council by the Act were permissive only. The Council, in approving in 1905 an experimental scheme for the establishment of an ambulance service, was presumably satisfied at that time that such a service was necessary. It had now to be considered, however, whether such material improvement had taken place in the provision of ambulances in the last six years as to render it unnecessary for a municipal service to be established and maintained, and whether the needs of the county could be met by subsidizing existing organizations or by an organization which might be instituted by private enterprise.

The Committee had, therefore, obtained information as to existing ambulances from the Metropolitan Police, the Port of London Authority, the Metropolitan Asylums Board, the Metropolitan Water Board, the borough councils, boards of guardians, and the principal hospitals. The most important provision was made by the Metropolitan Police, which maintained 199 ambulances at police stations, and 137 placed in streets. The Port of London Authority was effecting great improvements in its ambulance facilities, and when these were complete the service would consist of 4 motor ambulances, 41 litters and litter under-carriages, 43 stretchers, and 38 awnings. The equipment was designed for the service of the dock premises, and would not prove more than adequate for that purpose. The Metropolitan Asylums Board possessed 8 ambulance stations, which combined had accommodation for 184 men and 60 nurses. There were immediately available 62 horse-drawn ambulances, 17 petrol-driven ambulances, and 11 petrol-driven omnibuses; 11 more motor ambulances were to be acquired. The Board's ambulance service was instituted for the conveyance of infectious cases, but during the last ten years it had been necessary to provide for the conveyance of non-infectious patients to the imbecile asylums and children's institutions. In the last three years no fewer than 5,000 non-infectious cases were conveyed in the Board's ambulances. The Metropolitan Water Board had no ambulance facilities; in twenty-five boroughs no ambulances were under the direction of the borough council. There was small provision in Battersea, Fulham, and Poplar. As to the boards of guardians, in twenty cases the ambulance provision was not available for public use in case of street emergency, and in ten cases it was; the ambulances were principally used for conveying patients between the workhouses and the infirmaries.

In regard to the provision at the hospitals, the following had no ambulances: Bolingbroke, Guy's, Kensington and Fulham, King's College, London Homœopathic, Middlesex, St. George's, St. John and St. Elizabeth, West London. The following had one hand ambulance each: Charing Cross, London Temperance, Metropolitan, Miller General, Poplar, St. Bartholomew's, St. Mary's, St. Thomas's, Royal Free, Westminster, Great Northern Central (used occasionally for cases of accident occurring near the hospital). The London Hospital and the North London or University College Hospital had one horse ambulance and a hand ambulance each. The St. John Ambulance Association appeared to have no general organization for dealing with ordinary street accidents, its work being confined to rendering assistance on all occasions when crowds congregated in any large number.

A conference of the London boards of guardians, held in 1907 to consider the ambulance question, passed the following resolution:

> That this conference is of opinion that an effective ambulance service for London can be established and maintained without expense to the public rates, by co-ordinating and developing the existing services, and by empowering the Poor Law authorities of the metropolis—namely, the Metropolitan Asylums Board and the boards of guardians—to place the ambulances they possess at the disposal of the public.

Mr. Lyon Thompson, the chairman of the conference, had suggested that the ambulances of boards of guardians might be used for street accidents, private telephones, such as those in chemists' shops, being utilized by consent for the purpose, and that thus an efficient service would be available in a comparatively short time at a very small expense.

The General Purposes Committee thought there was much in the contention that there already existed in London material which, with efficient co-ordination and organization, would furnish an adequate ambulance service. It appeared to be the duty of the Council to undertake this co-ordination. In response to an inquiry addressed to the Home Office and the Local Government Board as to whether the ambulances maintained by various existing authorities could be utilized, the Home Secretary had stated that police ambulances were all available for use in street accidents, and were habitually used in this way. The Local Government Board stated that, although it approved of the principle of a united ambulance service for London, it was advised that it had no power to sanction or authorize the utilization for such a purpose of the ambulances provided by the Metropolitan Asylums Board, the borough councils, boards of guardians, and other authorities. Legislation would be necessary to empower those bodies to enter into agreements on this matter with the Council.

In view of this expression of opinion by the Local Government Board, the Committee considered that the Council should seek parliamentary powers next session to enable the authorities referred to to enter into agreements with the Council, and that the Home Secretary should be asked to procure the provision of a larger number of suitable appliances to be maintained by the Metropolitan Police. The Committee had not consulted beforehand the authorities concerned, as it was necessary to decide at once if it was intended to apply for parliamentary powers. It could not but think that the various authorities would be willing to assist in the provision of an efficient and, at the same time, economical ambulance service for London.

Discussion.

Mr. H. L. Jephson moved the following amendment to the proposal:

> That the Committee do forthwith prepare a scheme (*a*) for utilizing such existing appliances as are available, (*b*) for providing such further appliances as are necessary for completing an efficient service for the County of London, and (*c*) that the Council do assume control of the whole service.

Mr. Jephson expressed regret that, although this matter had been under consideration for years, the report of the Committee to the Council should have been presented at less than a day's notice. The question was one of deep interest to the public. He had just received the return of the "killed and wounded" by accidents in the streets of London. The numbers had risen from 175 people killed and 9,505 injured in 1902 to 410 people killed and 19,157 injured in 1911. Mr. Jephson sketched the history of the ambulance question in London. Apart from the hand ambulances and wheeled litters of the Metropolitan Police there was practically no provision in London for those stricken down in the streets. One of the great disadvantages of the lack of a system of proper ambulances was the great injury done to sufferers through being conveyed to hospitals in unsuitable vehicles. Many distinguished physicians and surgeons had expressed the opinion that the provision of an ambulance service should be undertaken by the Council. The late Dr. Danford Thomas had frequently called attention to the need of an ambulance service, and Sir William Collins in 1904 stated that nearly 70 per cent. of casualties were taken to hospitals in cabs and carts. This represented an enormous amount of unnecessary suffering, and a proper ambulance service would

save many lives. London was behind all the big cities of the world in this respect, and the increase of swift motor traffic made the question all the more urgently in need of attention.

Mr. W. C. Johnson seconded.

Mr. Ernest Gray, Vice-Chairman of the Committee, said that Mr. Jephson's proposals meant that the Council should seek to control all existing ambulance services and to provide others. An efficient ambulance service, however, postulated the existence of men capable of readily utilizing it. It was one thing to have a machine, but, unless the persons who used it were properly trained, they might do infinitely more harm than good. The Departmental Committee emphasized the importance of further training of the Metropolitan Police. The first thing an officer had to do was to decide what kind of ambulance—hand or motor—was needed, how the patient was to be handled, and where he was to be sent to. All this presupposed a large amount of training. When the actual vehicles and their drivers were provided, only a small portion of an efficient ambulance had been installed. Having regard to the extent of the provision that already existed, it was ridiculous that the Council should provide a further number of ambulances. Those available at present stood idle for a great part of the day, and all that was necessary was to obtain the amendment of the law which would enable them to be made available. The Council could not obtain control of the whole ambulance system because it could not control the police, on whom the principal reliance must be placed in this matter. The result of any further division of authority would be constant disputation as to the responsibility for the non-removal of those who had met with accidents in the streets.

Mr. Edward Smith pointed out that Parliament had already made the County Council the ambulance authority for London. The ambulances of the boards of guardians were fully utilized at present, and those of the Metropolitan Asylums Board were principally intended for the conveyance of persons suffering from infectious diseases. A suggestion which might be of value was that the services of the fire brigade should be utilized in connexion with an ambulance service. At any rate, the seven central ambulance stations originally proposed would only cost £14,000 a year, and the present proposals would involve further protracted delay.

Mr. Lithgow thought it unnecessary to go to Parliament for further powers, when those already conferred upon the Council had not been used. This was essentially a medical matter, and in the last issue of the BRITISH MEDICAL JOURNAL there was a very able article pointing out that the only authority which could effectively undertake the provision of street ambulances was the County Council.

On a division the amendment was lost by 65 votes to 42, and the recommendations of the Committee were approved.

PECKHAM MEDICAL TREATMENT CENTRE.

This institution, at 412, Old Kent Road, was opened by Dr. Hamer, medical officer to the County Council, on November 8th. By the invitation of the Chairman and Committee, about one hundred persons visited the centre, including members of the profession in practice in the locality, members of care committees, and teachers. The Chairman (Dr. Capes) asked Dr. Hamer to declare the centre open, and gave an account of the negotiations that had brought it into existence and of its purpose and methods. Dr. Hamer spoke of the ancient fame of the Old Kent Road, and declared the centre open; and after votes of thanks to him, to the Secretaries, and to the Chairman, the premises were inspected. They consist of a waiting-room, a consultation-room for eye and throat cases and for minor ailments, an *x*-ray room, an operating theatre, and rooms for preparing the patients for operation and for subsequent recovery. The centre commenced work on Monday, November 11th, the following staff having been appointed by the London County Council:

Anaesthetists.—A. D. Brenchley, M.D.Aberd., and B. A. Richmond, M.D.Lond.

Nose, Throat, and Ear.—J. H. Clatworthy, M.D.Lond., M. G. Dyson, F.R.C.S.Eng., and W. G. Stone, M.D.Oxon., F.R.C.S.Eng.

Ringworm: Treatment by X Rays.—G. B. Batten, M.D.Edin.

Eye Cases (Refractions).—J. T. Clark, M.B.Glasg., D.P.H.

Minor Ailments.—R. P. Marshall, M.R.C.S., L.R.C.P.

Special Correspondence.

BUDAPEST.

The Normal Temperature of the Body.—Tuberculin.—The Physiology of the Secretion of Uric Acid.—Carbohydrates in Diabetes.—Mental Troubles due to Arterio-sclerosis.—Salvarsan in Mental Disorder.—The Change of the Infectivity of Rabies under the Action of Certain Factors.—Tuberculosis from National Economical Point of View.—Horse Meat.

AT the recent meeting of the Hungarian physicians and natural historians, a paper was read by Professor L. Detre on the normal temperature of the body. He had been enabled to compile his table of figures by means of experiments made on the tuberculous patients of the Charité Hospital in Budapest and on the healthy inmates of a military barracks. The result of these experiments proved that in adults between the ages of 15 and 45 the normal temperature of the body was as follows: 36.2° to 36.4° C. in the morning, 36.3° to 36.7° C. an hour or two after lunch, and 36.2° to 36.5° C. in the evening. If the temperature were taken in the mouth the thermometer should register below 37°. Anything above that figure may be regarded as a sure sign of fever, the unfailing herald of bacterial infection, although in nearly every student's textbook 37.1° C. to 37.3° C. are put down as normal temperatures. In most cases, however, such figures indicate the presence of latent tuberculosis; and it is the imperative duty of the physician to make a thorough examination of the patient in order that any tendency to phthisis may be checked at the onset.

Dr. Detre was followed by Professor Friedrich, Sanitary Adviser to the King and Director of the State Insurance Office, who gave some account of the results obtained from his inoculations with tuberculin. These results have, on the whole, been decidedly favourable. Many of the inoculated patients have been enabled to earn their own living for years, whilst their weight has become stationary, and there has been no sign of haemoptae. On the other hand, in cases of tuberculosis of the larynx, the results have been far from satisfactory; and any improvement in the patient's condition following the inoculation has been merely subjective, and can, therefore, hardly be counted as a triumph of the new serum.

The attention of the Faculty was next called by Dr. M. Szántó to a mistake very frequently made by doctors, who diagnose uric acid diathesis on the strength of one examination of the urine. They seem to forget that the patient's daily diet accounts for a considerable proportion of the uric acid found in the urine; and it is well known that if more than the usual quantity of meat is consumed and supplemented by such foodstuffs as liver, heart, kidneys served with marrow (a favourite Hungarian dish), etc., the acid will increase to a noticeable extent. All this, however, has nothing to do with pathology. Dr. Szántó concluded by warning his hearers never to prescribe alkaline mineral waters containing lithia for patients suffering from uric acid, and advised them to order in their place saline waters, which have a distinctly beneficent effect in such cases.

Dr. A. Torday, who spoke on the employment of carbohydrates (particularly oatmeal) in diabetes, reported very favourably on the results of this method of treatment. He has found that not only is the monotony of the diabetic's meals pleasantly varied by the introduction of fresh foodstuffs, but that the carbohydrates have usually an excellent effect in diminishing the quantities of ureton and diaceton. In Dr. Torday's opinion, oatmeal is the best carbohydrate for this purpose; but in its absence other kinds of starchy food, such as rice or wheat, can be used in the form of soups.

The direct relation between arterio-sclerosis and various

types of nervous and mental disorders was then discussed by Dr. S. Fischer, who remarked that the knowledge of this fact was particularly important from the point of view of forensic medicine.

An interesting paper on the effect of salvarsan in mental cases was read by Professor T. Donath, who, from the month of October, 1910, to January, 1912, had made use of this drug in 107 cases. It should be added, however, that out of this number only 48 were suffering from actual syphilis of the nervous system. The results of the treatment, said the Professor, were particularly satisfactory in cases of syphilitic hemiplegia and paraplegia. In the case of the former two-thirds of the patients recovered; whilst in every case of syphilitic epilepsy the attacks ceased entirely. Salvarsan was even more successful as a treatment for severe headache. Out of the 30 cases of syphilis of the brain which came under Donath's care, 11 were completely freed from pain; whilst anaesthesias, analgesias, paraesthesias, and fainting fits also vanished after a course of treatment by salvarsan. The psychical effects of the drug are equally remarkable. In the case of 7 of Donath's patients the memory was considerably improved; whilst the general mental condition of two-thirds of the whole number was greatly bettered and 10 were completely restored to their normal state. As regards locomotor ataxia (of which 31 cases in the initial stages of the disease were under Donath's observation), the patellar reflex seems likely to recur even after a course of treatment; whilst in 2 cases of tabes the memory was improved, and in two others the bodily and mental functional activities were both restored. In 28 cases of incipient paralytic dementia the pupillary reaction recurred in 3 cases, and the tendon reflexes in one. In 4 cases the gait, and in all the speech, improved after treatment, one case of "dysarthric" speech being completely cured. In 9 cases an improvement was effected in the intelligence of the patient, and 4 were so far restored to health as to become once more capable of earning their own living. It is interesting to learn that in addition to its other advantages, salvarsan helps materially to improve the body weight, and in cases of paralysis progressiva is excellent when supplemented by nucleinic acid of sodium, a combination used invariably in these cases by Professor Donath.

The question of a time limit with regard to infection from rabies was discussed by Dr. Konradi, who described his efforts to discover how long the body of a dog which has died of hydrophobia remains infectious. Having been called into court to pronounce judgement on a dog buried three months previously, he found that no experiments had ever been made for the purpose of settling once and for all how long the infection lasts in such cases. He was obliged, therefore, to bury for a certain period the bodies of dogs and rabbits which had died of rabies, and from them perform, at stated intervals, intramuscular and intra-arachnoidal inoculations on other animals. By these means he was able to prove to the satisfaction of the court that in this instance the earth does not act as a disinfectant, and that even at the end of three months the body of the dead animal is only a little less infectious than the very day it was buried.

A short paper on tuberculosis statistics in Hungary was then read by Dr. Pécsi Dani, who stated that the annual death-rate from consumption in Hungary showed an excess of 40,000 as compared with the death-rates of other European countries. These deaths, he said, could be prevented in Hungary just as they are prevented in England, France, and Germany, if only the Hungarian Government directed its energies towards the improvement of public hygiene. The whole question was one of money; but if the Government were once persuaded to disburse the necessary sums it would prove without fail to be the most remunerative investment it had ever undertaken.

The use of horseflesh as an article of diet was advocated by Dr. Szalkay, who described it as being at once wholesome and nourishing. It was necessary, however, to overcome the prejudices of the lower classes and teach them its true value as a foodstuff, and for this purpose he suggested the distribution of free pamphlets on the subject about the streets and the erection by the municipal authorities of restaurants where horseflesh should be a usual dish at the table d'hôte meals.

Correspondence.

THE URGENT NEED OF A STREET AMBULANCE SERVICE FOR LONDON.

SIR,—I was glad to see by your leading article under the above heading in your last issue of the JOURNAL that you are again bringing to the front the deplorable and discreditable deficiency in Greater London of a proper system of rapidly moving ambulances.

We ought long ago to have followed the admirable plan of the City of London, and of other cities at home and abroad, in this respect.

Having myself travelled and spent a good deal of money and much time and thought in preparing evidence for the Departmental Committee, when, as President of the Royal College of Surgeons, I was called upon to appear before that Committee, I have often felt that my own efforts, and those of others also, have been utterly wasted in that no good to the public has resulted therefrom.

My own view, as given in my evidence and arrived at after prolonged investigation and deliberation, was that the ideal plan is to put the Metropolitan Police in control of a motor ambulance system; but that, failing the police, the Metropolitan Asylums Board is the next best authority to be entrusted with the work. The least suitable body to undertake such control is, in my humble opinion, the London County Council. I will not take up your space by repeating my reasons for this view, as they are fully stated in my evidence before the Departmental Committee.

My object in writing is to point out that the parliamentary bill passed in 1909 has been an obstruction and the cause of delay; and that had the matter been placed in the power of either the police or the Board, a rapid ambulance system would have been in full working order in the metropolis long ago.

The London County Council has neither the stations, nor the ambulances, nor the working staff for the ambulances; the Metropolitan Asylums Board has all these.

It would be very little trouble and (comparatively) very small additional expense for the Board to increase as far as necessary the number of its stations, its carriages, and its staff; and with its present great experience the Board would work the system more satisfactorily and very much more economically than could the London County Council. Furthermore, unless I have been incorrectly informed, the Metropolitan Asylums Board is not only able but is also willing to provide and work a motor ambulance system for street accidents and non-infectious cases, and could do so without the least delay in making a beginning.—I am, etc.,

London, W., Nov. 11th. HENRY MORRIS.

SIR,—Your article on the urgent need of a street ambulance service for London draws a well-timed attention to a grave blot on London administration. Your history of the position, however, is hardly complete, and omits to state that the Departmental Committee appointed by the then Home Secretary, Mr. Herbert Gladstone, in 1909, reported "that under the circumstances at present prevailing in the metropolis the most efficient and economical system is to be found in an extension of the service of rapid ambulances which has been initiated by the Metropolitan Asylums Board . . . and we recommend that the Metropolitan Asylums Board should be authorized by Act of Parliament to apply their funds to the establishment of a service of non-infectious ambulances for the transport of 'street cases,' and to enter into agreements and generally to co-operate with the Metropolitan Police for this purpose." A Minority Report was appended by Sir William Collins, a member of the Committee, who adhered to his pet project of entrusting the work to the body of which at that time he was a member. In the following session Sir William Collins, with a laudable but none the less disastrous pertinacity, brought in a bill to authorize the London County Council to establish the service, whereupon Mr. H. Gladstone, ignoring his Departmental Committee and lending all the influence of Government support to the bill, secured its passage into law. It is more than probable that had Mr. Gladstone foreseen that at the subsequent elections a decisive Moderate majority, pledged

to more economical methods, would be returned to the London County Council, he would have acted differently.

The plain fact is that the Metropolitan Asylums Board is the one body in the metropolis that possesses the facilities, the equipment, and the experience for inaugurating a general ambulance service without delay, and with the least expense to the ratepayers. For over forty years it has conducted a widely extended ambulance service in connexion with the infectious diseases of London, and for several years past it has undertaken an increasing service for the transport of non-infectious cases of all kinds—a service necessarily limited by the absence of statutory powers, but tacitly permitted because it meets so obvious a need. Further, by substitution of a rapid motor service for the old horse traction, which is now completed, it has thrown out of use two ambulance stations, and has set at liberty large portions of the stations in use, all of which could be readily set apart and isolated for a separate service for accidents and other emergencies of illness. Recently, moreover, it has taken over from the boards of guardians the casual wards of the metropolis, and in a few months found it possible to put out of use several of them. It may be reasonably conjectured that these could be turned into auxiliary ambulance stations, and that even some of the casual wards in active use have premises sufficiently large to admit of the station of one or more ambulances during the day.

In the face of the existence of such facilities ready to hand employing buildings built by ratepayers, which would be otherwise unused, it is not surprising that the London County Council has apparently been reluctant to embark on a scheme of its own which must be costly, and is demonstrably unnecessary, and, therefore, extravagant.—I am, etc.,

London, W., Nov. 12th. H. WILLINGHAM GELL.

CONTINUOUS INHALATION IN PULMONARY TUBERCULOSIS.

SIR,—Your report of Dr. Lees's interesting lecture on the treatment of pulmonary tuberculosis by continuous inhalation should be widely read by all medical men who are daily engaged in grappling with this terrible disease. Having employed this method of treatment during the last fifteen years or more, I can fully endorse Dr. Lees's main contention that continuous inhalation is one of the most efficient means in arresting the disease. In his lecture, however, I am mentioned as using an inhalation of formaldehyde and menthol, which Dr. Lees thinks is irritating, and, therefore, unsuitable. To correct any possible misunderstanding I should like to add a word of explanation about inhalation methods employed in our sanatorium for many years.

We never use formaldehyde alone. We use two or three solutions each containing three or four antiseptic drugs. We administer formaldehyde in 2½ per cent., and gradually increased to 5 per cent., strength (in the form of gas, not in watery solution) combined with creasote, terebene, pumiline pine, and dissolved in rectified spirit and chloroform. Such a mixture makes a pleasant combination. In the majority of cases with no laryngeal complication, formalhehyde used in this way is not at all irritating. In fact, it has the effect of hardening the mucous membrane of the air passages, and is, therefore, easily tolerated. But in a few cases where it is not tolerated, or to give variety and change after a few weeks of treatment, we also use a mixture containing guaiacol, iodine, terebene, pumiline pine, combined with rectified spirit and chloroform. Employing the inhalation as we have done, day in and day out, for weeks and months, we find it best to give the patients a choice of two or three solutions, as they are apt to get weary and tired of using the same mixture over and over again all the time. A little difference in the antiseptic mixture, both in colour and in smell, makes a new impression upon the mind, and gives a fresh endeavour and stimulus to persevere in the treatment.

After all it is in perseverance rather in any special antiseptic mixture that the secret of success lies. It is for this reason that the inhalation treatment in the majority of cases cannot be successfully carried out at home as Dr. Lees avers. For one thing it is not possible to have perfect sanitary and hygienic conditions in every home. The next is, while it is found difficult for patients to be strenuous in using the inhalation for eight to ten hours a day in a sanatorium in spite of the constant vigilance and encouragement of the physician, how is it possible for a consumptive with a weakened will, all alone and surrounded with a hundred adverse influences at home, to carry out the treatment day and night and for weeks and months? Thirdly, it is not continuous inhalation alone that is going to arrest the disease. We found that it must be combined with fresh-air treatment and graduated exercise. It is only by combining these three main forces together and directing them against the enemy with sustained effort and perseverance that permanent and satisfactory arrest of the disease can be achieved.—I am, etc.,

Mendip Hills Sanatorium, Wells, Nov. 11th. C. MUTHU.

SIR,—In the abstract of my Bradshaw Lecture published in the BRITISH MEDICAL JOURNAL there is an unfortunate misprint which I hope you will allow me to correct. It is stated on page 1271 that "the most recent of the cases had ceased treatment *a week* ago." The word "*week*" ought to be "*year*."

May I also add to the table giving the bacteriological results the statement that in the nineteenth case no tubercle bacilli were found (though caseous cervical glands had been removed), but many streptococci?—I am, etc.,

London, Nov. 11th. DAVID B. LEES.

BLEEDING AND BLISTERING.

SIR,—You will, I am sure, agree with me that the lay press is not a suitable place in which to discuss differences in medical treatment, so I am writing to you, as I cannot allow some remarks made by Sir Victor Horsley in a letter to the *Times* of November 8th to pass unchallenged. He there writes that it is far better "to prevent a disease than to attempt to cure it by such barbarous and antiquated means as bleeding and blistering." We shall all of us, of course, support the proposition that prevention is better than cure, but I venture to say that very few physicians will approve of the adjectives Sir Victor Horsley has applied to two such valuable remedial measures as bleeding and blistering.

It would almost seem as if his devotion to surgery had obscured his judgement. I cannot in a letter enumerate all the cases in which bleeding is of inestimable service, but I may mention a few: Cases of high arterial tension with cerebral symptoms, uraemia, dilated right ventricle especially in connexion with pneumonia, the pain in thoracic aneurysm, etc.

Then as regards blistering. It curiously happens that this very morning I received a letter from a distinguished surgeon about a patient I sent him, in which he writes: "I prescribed a blister over the joint." For my part I have found blisters invaluable in many joint and other affections, and the introduction of the salicylate treatment of acute rheumatism has not done away with the advantages of blistering the joints on which the late Dr. Herbert Davies laid so much stress. To let two such valuable methods of treatment be disparaged by a man so well known as Sir Victor Horsley might tend to prevent their employment in suitable cases.—I am, etc.,

London, W., Nov. 11th. F. DE HAVILLAND HALL.

ACCOUNTS FOR FEES UNDER THE NOTIFICATION ACT.

SIR,—The Notification Act requires a district council to pay 2s. 6d. for each non-pauper, non-hospital notification delivered to their medical officer of health, but a notification is not a demand for cash. You cannot make a legal demand for cash upon any sanitary authority by delivering it to their medical officer of health. If the council does not pay you may recover your fee by an action in the county court, but before you do you will have to satisfy the court that you have made demand, and furnished the council with particulars of your claim. Moreover, before you sue any district council you are bound to give them one month's notice of your intended action, and render full particulars of your claim.

Why all this quibble about making out an account? Is an account worth nothing? The average medical man does not require to open his mouth and see what the district council will send him in respect of notification

fees. He wants to know which notifications he is being paid for when he signs the receipt for fees, and the sanitary authority, of course, wants to have the same information to put before the Local Government Board auditor.

It is not the duty of the medical officer of health to run across to the clerk's office daily and tell him that Dr. Blank is entitled to 2s. 6d. for a notification received, nor is it the duty of the medical officer of health to make out an account for Dr. Blank each quarter day.

Surely the essence of this subject is contained in the last three lines of Dr. Bateman's letter (November 9th, p. 1338)—"as a matter of convenience," a quarterly account of fees demanded, and a quarterly payment of them, with receipt endorsed on the account itself! Then there will be no question of "statute barred," for a ratepayer of the parish from January to December, 1912, only will not need to go before the Local Government Board auditor and object to the allowance of Dr. Blank's account for a debt contracted before July, 1911, before he became a ratepayer.—I am, etc.,

Kendal, Nov. 9th. R. Musgrave Craven.

PROPOSED COMMISSION ON DIET AND DISEASE.

Sir,—The Journal of October 19th contains many facts of the greatest interest and importance on many subjects, but those with regard to food and drugs interest me especially. How a medical man can lend himself to the forcible feeding which is causing such an uproar is a puzzle to me. Nothing would induce me to force food on any one who was not hungry, and there can be no doubt that so soon as true hunger was felt by the most obstreperous suffragette she would be glad to eat anything, and think it uncommonly good. I had a talk with one of the suffragettes who had been in prison and would not eat, and she told me—what I knew from my own experience, as well as from that of others—that in two days she had no desire for food, and could have gone on fasting with pleasure. Not only is there no danger in fasting, but it is actually curative, as a Roman Emperor taught his physicians. He suffered from disease, not neurasthenia, and all the efforts of the best physicians at his command only made him worse. He resolved to end his life by starving himself to death, and would take no food. To the astonishment of his physicians he got well. I was once consulted in a case where a young man was trying fasting as a cure, refused to eat, and frightened his parents. On the twenty-ninth day of his fast he walked sixteen miles, and was free from the malady which had so grievously afflicted him, so that we need not be afraid of any one dying through fasting for a few days, even in a prison.

The effect of a saltless diet, in curing oedema, which has been recently discovered, and the cause of sleepiness after food, which Dr. Frederick Taylor is trying to discover, emphasize the need there is for the profession to "wake up," and begin to study the physiological action of food; and then, I have little doubt, our food will become our physic. In this connexion I may say that, in a local newspaper, a man who had been reading the exposure of quack remedies—a most creditable publication—came to the conclusion that doctors should be asked to write their prescriptions in plain English. Whatever harm might result from such a practice, it shows how dangerous it is, as this man put it, for those who live in glass houses to throw stones. After all that can be said, either for or against the profession, at the present crisis we require to walk warily; but, so far as I can see, there is nothing that would raise it, in the eyes of the people, so much as to be able to tell them how to live so as to prevent disease, and that cannot be done until we know more about the action of different foods than we do at the present time. Such an investigation would be an excellent addendum to the exposure of the quacks, since it might prevent any one requiring to use such nostrums.—I am, etc.,

Hawick, Oct. 19th. John Haddon, M.D.

ILLNESS AND INTELLECT.

Sir,—Is it not nearly time the myth of the extent "of the world's work done by invalids" was decently interred? At any rate, do you not think the pages of a scientific journal should be the last to give the ridiculous idea a new lease of life? True, probably, no one could bring greater ability to the task, and you have certainly exhibited in no small degree the depth of your erudition. Yet what effect had your article on my mind? Exactly the opposite you intended, for, on your own showing, the morbidity amongst individuals exhibiting genius is remarkably low. Only "16 per cent. of poets suffered from ill health during the active part of their lives." What a good thing for the pocket of the profession that so few people become poets! In the course of 2,000 years three—a whole trio—great generals were epileptic. Really, we must draw the attention of our negligent War Office to the fact and urge them to cashier immediately all officers not epileptic. How on earth did Hannibal and Marlborough and Wellington manage? Probably, if you examined the evidence, you would find it as positive that they had epilepsy as that Caesar and Mahomet had. I see now why Luther was such an effective force in his prime. Obviously because "his last years were disturbed by almost constant ill health." Really, Sir, with care, some of us may attain fame yet if only we also take care that our old age is sufficiently troubled by ill health.

If it were only to tilt at your paradoxes—for it cannot be that you are serious when you so confidently assert that "It is not to men of healthy digestions . . . that we owe the great revolutions that make human history"—I would not waste my leisure or your valuable time, but a much more serious purpose lies behind. At the present time the more thoughtful people are doubting the efficacy of our methods of improving the human race. In spite of the humanitarian zeal, legislation, sanitation, and education of the last century, these people are satisfied that our last state is worse than our first. They demand the cause. Our present type of politician tells them, You require more laws which I will pass, and all will be well. The sanitarian says, Stamp out tuberculosis and then—Elysium. The educationist says, Ignorance is the cause, therefore educate to 16 or 18; or every one should have a university education, and then—heaven on earth. The bewildered individuals turn to the scientist, and he in his "blind enthusiasm" says, Take care of your breeding. Then along you come, and you say, if you do "there is a chance of reducing mankind to a dead level of dull mediocrity" (November 2nd, p. 1237). In Heaven's name, why? And again (November 9th, p. 1327), "Eugenists, in their blind enthusiasm, are threatening to stamp out the germs of possible genius." Indeed! How? From the article of November 2nd one assumes that you mean by prohibiting the marriage of insane and feeble-minded persons. This is to stamp out the germs of possible genius. In the article of November 9th you are more concerned about the toxins of tuberculosis as a genius inspirer, with somewhat lingering thoughts towards the poison of gout, which, when it affects the *brain*, leads to "a state of general gloom," but when only the *joints* are affected, "the mind seems to undergo a kind of lustration." Curious, isn't it? And this is the kind of stuff that is to enlighten the "blind enthusiasm" of the diabolical eugenist. Not much light there, at any rate.

Here is a concrete example which may show us to what extent we differ: I attend a family where there are three children. The eldest is eccentric and liable to outbursts of intense passion. The second has epileptic fits. The third, a young woman of very prepossessing appearance, has already been an inmate of an asylum, and has been discharged "cured." The family history exhibits insanity, talent, and civic worth. What advice would you give as to their marriage? I, in my "blind enthusiasm," have assured them that in my opinion it is a most reprehensible crime for any of them to even think of marriage.

In your issue of November 2nd you make a point of the fact that in the pedigrees of insane persons occur lives of sterling worth. Naturally; why not? According to the figures you give there exists 1 insane person amongst 150 (8 in 1,250) of the general population—probably a very accurate estimate, since on January 1st there were in asylums 1 in 269, and to these must be added those insane not yet certified and those discharged as "recovered" and "not recovered." In 1911 these alone numbered 9,754. Obviously the actual or potential insane person has a choice of 149 sane mates, in whose ancestry we may expect only about 1 insane person in 150 to appear. As

a result of this there is no need to wonder that the ancestry of their insane offspring, if any, should exhibit sterling worth. There exists a further fallacy. It has not yet been shown that what may be called "acquired" as opposed to "hereditary" insanity requires a neuropathic or psychopathic strain. For example, general paralysis of the insane may appear in stocks showing much less than the usual average of 1 insane in 150. Too little is made of this fact. We do not differentiate sufficiently as to the type of the insanity, which it is very necessary to know, when we are discussing the offspring of an insane parent. It naturally follows, if the assumption that some forms of insanity are "acquired" and not "hereditary," that, as Dr. Mott states, "We have no right to say that because a parent is insane the children must necessarily be insane or useless to the race." Further, if an insane person marries a normal individual, it is not to be expected that *all* the children shall become insane even if the assumed neuropathy be a simple "unit character." According to theory, only 1 insane in 4 children is to be expected, or if the apparently normal parent is really a "simplex," as the American observers call him, 1 in 2, and the others may easily contain your problematic "germ of genius." If the assumed neuropathy is not a simple "unit character," the proportion of insane will be still less.

We need not, therefore, wonder that sterling worth appears either in the ancestors or the descendants, yet surely we are not for that reason to idly fold our hands or inform these people, as you seem to suggest, to marry early and often, so that in our "blind enthusiasm" we may not be guilty of "stamping out the germs of possible genius."

What we need is more definite investigation, so that we can state dogmatically that such and such things will necessarily follow marriages of this type. I think we already know sufficient to give good guidance, but you say not, because of this possible genius trouble. You assume, absolutely on no sufficient grounds, that the genius comes from the insane stock. I assume, on more probable grounds, that it comes from the untainted stock, and the individual concerned is not also prohibited from marrying because the tainted has been, and if he marries another untainted person then I think the chances of the genius appearing is greatly enhanced.

For goodness sake do not, next week, urge the eugenist not to attempt the elimination of syphilis—a desire very near his heart—for fear of reducing the chances of the appearance of prospective Shakespeares and Goethes.—I am, etc.,

Manchester, Nov. 10th. JOHN D'EWART.

THE SURGICAL TREATMENT OF RECTAL CANCER.

SIR,—I would like to endorse the views expressed by Mr. Mummery and Mr. Gordon Watson with regard to the use of the sigmoidoscope in the diagnosis of high-lying rectal cancer.

By means of this instrument we can see such growths, and surely, in the matter of diagnosis, sight can be educated as well as touch.

Again, we can accurately remove pieces from the growing edge of a high-lying rectal growth by means of long crocodile forceps passed through the sigmoidoscope.

Mr. Harrison Cripps, in adhering to his statement "that cancer can never be diagnosed to a certainty by sight alone; *touch only*, by indicating hardness and friability, has to be relied on," rather loses sight of this use of the sigmoidoscope.

By this means, in conjunction with the microscope, I have been able to diagnose rectal cancers which were outside the reach of the finger. This does not necessitate the use of an anaesthetic, and is a much more accurate and scientific method of diagnosis than a bimanual examination under an anaesthetic, as advocated by Mr. Cripps. Surely a small early high-lying carcinoma could hardly be detected by this bimanual method.

It would be interesting to hear other proctologists' opinions on this question, but surely few will agree with the statement that the sigmoidoscope is worse than useless in the diagnosis of rectal cancer.—I am, etc.,

H. GRAEME ANDERSON,
Assistant Surgeon to St. Mark's Hospital.

London, W., Nov. 12th.

ROENTGENOLOGY AS A SPECIALITY.

SIR,—Finding that there is a certain amount of uncertainty about the relations which should exist between the roentgenologist and the doctor who sends the patient to him, and also that the medical man in attendance has some difficulty in explaining to the patient the position of the roentgenologist, I think it may be as well to reproduce the resolutions passed at the Berlin Congress of the German Roentgen Society, April 14th, 1912, defining the status of the specialist in roentgenology:

1. Roentgenology is a duly authorized medical speciality, just as are laryngology, ophthalmology, etc.
2. The roentgenologist is a medical specialist, and as such, in accordance with the usual medical custom, he is called in as a medical consultant by the patient or his physician, in order to make or confirm the diagnosis.
3. The roentgenologist makes use of the Roentgen examinations in addition to the usual clinical examination. He alone decides what particular procedure shall be employed—radiography, radioscopy, orthodiagraphy, or teleoroentgenography.
4. All plates, diapositives, tracings, orthodiagrams, and teleoroentgenograms prepared for the diagnosis of the case are the property of the roentgenologist, just as histological preparations belong to the consulting pathologist. The roentgenologist will, however, as a matter of courtesy, be always ready, if requested, to place his prints and plates at the disposal of the consulting physician.
5. The supply of negatives or prints to sick clubs and insurance companies is a matter of special arrangement. Moreover, in urgent cases it is the usual custom of the roentgenologist to place the skiagram at the disposal of the surgeon.
6. The roentgenologist may at his discretion place a copy of the plate at the disposal of the patient, either gratuitously or on payment of a fee. This should, however, only be done in those cases where it will cause no harm or needless anxiety to the patient.

I may add that these resolutions were adopted by the American Electro-Therapeutic Association at the twenty-second annual meeting, September 12th, 1912.—I am, etc.,

F. HOWARD HUMPHRIS, M.D.Brux.,
F.R.C.P.Edin.

London, W., Oct. 22nd.

Obituary.

ARTHUR HENRY BENSON, M.A., M.B.(T.C.D.), F.R.C.S.I.,

OPHTHALMIC SURGEON TO THE ROYAL CITY OF DUBLIN HOSPITAL.

WE regret to announce the death, which occurred on November 6th, of Dr. Arthur Henry Benson, at Donnybrook, Dublin. He was a son of the late Dr. Charles Benson, M.D., one of the founders of the Royal City of Dublin Hospital, and a younger brother of Sir Hawtrey Benson, the President of the Royal College of Physicians in Ireland. Dr. Benson had a distinguished career in Trinity College, Dublin, where he graduated in Arts in 1875, and in Medicine in the following year. He then went abroad and studied under the leading ophthalmic surgeons on the Continent. In 1883 he was appointed Ophthalmic Surgeon to the Royal City of Dublin Hospital, which post he held until his death. In 1881 he took the Fellowship of the Royal College of Surgeons in Ireland, and in 1886 the M.A. degree was conferred upon him by Trinity College, Dublin. He was also appointed surgeon to the Throat and Ear Hospital in Dublin, and when its place was taken by the Royal Victoria Eye and Ear Hospital in 1904, he was appointed surgeon to the latter institution. He was a Fellow of the Royal Academy of Medicine in Ireland, and a member of the Ophthalmological Society of the United Kingdom. For many years he was university examiner in ophthalmic surgery in the University of Dublin, and examiner in ophthalmic and aural surgery in the Royal Colleges of Physicians and Surgeons in Ireland.

Dr. Benson published many papers in the *Transactions* of the Ophthalmological Society and the medical journals, his most important contributions being on modern operations for trichiasis and treatment of stenosis of the nasal duct. In 1894, in recognition of his arduous work in organizing the Kosmic Fête in the previous year, the directors of the Royal City of Dublin Hospital resolved that one of the ophthalmic wards of the hospital should be called the "Arthur H. Benson Ward."

Though for the past year Dr. Benson was unable to

attend to his hospital duties owing to heart trouble, it was hoped until quite recently that he would recover and be able to resume his work. By his untimely death the members of the medical profession in Dublin have sustained a severe loss.

FREDERIC BAGSHAWE, M.D.Cantab., F.R.C.P.Lond.,

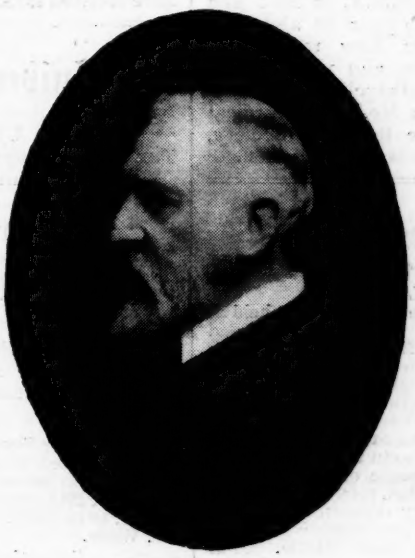
CONSULTING PHYSICIAN, EAST SUSSEX HOSPITAL, HASTINGS.

Dr. Frederic Bagshawe, of St. Leonards-on-Sea, was taken ill with acute pneumonia on October 28th, and breathed his last on November 2nd. By his death St. Leonards loses its oldest practising physician, and one of its best known public men.

Frederic Bagshawe came of an old Derbyshire family. He was the grandson of Sir William Bagshawe of Wormhill Hall, Castleton, and the Oaks, Derbyshire, and the son of the Rev. E. B. Bagshawe, Rector of Eyam, by his marriage with Miss Partridge, of Bishop's Wood, Hereford. Born in 1834, he was educated at Rossall and Uppingham Schools, St. John's College, Cambridge, and St. George's Hospital, London. He took the degree of A.M. in 1861, and that of M.B. in 1863, became M.R.C.P.Lond. in 1864, and commenced practice in Connaught Square, W. He was appointed physician to the Western General Dispensary, where he had for a colleague Dr. (afterwards Sir) William Broadbent. He also held, for a short time, the post of assistant medical officer at the Hospital for Sick Children. In 1865 he took the degree of M.D.

During the later sixties his health obliged him to winter in the South of France and to pass part of the year at St. Leonards. Until the outbreak of the Franco-Prussian war he practised alternately at home and abroad, but in 1870 settled permanently at St. Leonards. He acquired an extensive medical practice, and his professional status was marked in 1879 by election to the Fellowship of the Royal College of Physicians.

He had in 1871 been appointed assistant physician to the Hastings, St. Leonards, and East Sussex Hospital, to which he became physician in 1882 and consulting physician in 1907. To promote the welfare of this institution was his aim and interest for over forty years. His devotion to it was displayed not only in the diligent and cheerful performance of his hospital duties but also in the labours of himself and Mrs. Bagshawe in connexion with the rebuilding of the hospital in 1887, and in many (often anonymous) donations to its funds. Within the last year a much-needed high-pressure steam sterilizer was provided by him at a cost of nearly £100.



Frederic Bagshawe.

(Photograph by Elliott and Fry, London.)

Local medical organizations, such as the Provident Dispensary, the Sanitary Aid Association, and the District Nursing Association, owed much to his sympathetic support. He was an active member of the local Medico-Chirurgical Society, which he joined in 1867, and of which he was the president in the years 1878, 1879, and 1880.

In all movements affecting the public health of the borough Dr. Bagshawe played a prominent part. At the Health Congress held at Hastings in 1889 he was chairman of the Section of Preventive Medicine. Nor was his activity confined to matters allied to medicine. Education claimed a large share of his attention. Ha was at one time a member of the school board. The existence of the Hastings and St. Leonards Ladies' College is in part due to his exertion and influence. He was till his death chairman of its council, in which he had been a leading spirit for nearly thirty years. In 1897 his fellow townsmen recognized his public services by making him, on the same day, mayor and alderman of Hastings. He was subsequently made a J.P. for the county of Sussex.

He was an old member of the British Medical Association, and was president of the South-Eastern Branch in 1883. He was for many years the local treasurer of the British Medical Benevolent Fund.

Dr. Bagshawe had an extensive acquaintance with spas and watering places, both British and Continental. He was an original member of the British Balneological and Climatological Society and one of its early presidents.

Shooting and fishing were his chief recreations. His friends are glad to remember that not only were his mental powers retained to the end, but that his bodily strength enabled him to enjoy a day's shooting so late as a fortnight before his death.

In politics Dr. Bagshawe was a staunch Conservative; by religious conviction a moderate Churchman. He took a keen interest in the formation of local Church Lads' Brigades, and strove to encourage their rifle shooting by the presentation of a silver challenge shield for annual competition.

Dr. Bagshawe was twice married—in 1859 to Miss Frances Boss, and in 1870 to Miss Emily Dickinson, a sister of his friend, Dr. Howship Dickinson of St. George's Hospital.

A Brother Practitioner and Friend for thirty-six years (Mr. C. A. Brodribb) writes:

Of the personal characteristics of Dr. Bagshawe, none but those who, like the writer, had the privilege of knowing him for many years can worthily speak. Behind a veil of great reserve and self-restraint there lay a store of unbounded kindness and generosity. His good deeds were indeed freely bestowed on his countless friends, and yet no one of them knew the kind or degree of his goodness to others. His unfailing courtesy and patience to all—to the unthankful, the irritable, and even to the unworthy—made him universally beloved and respected. Apart from his high professional skill, his many patients have lost a true friend. His high sense of honour and his deep and sincere religious convictions make him a noble example for his many friends to try to imitate.

Such lives are lights to help us on our way.

Dr. Leonard Williams writes: Dr. Frederic Bagshawe, of St. Leonards, was a highly-esteemed and most valuable member of the Society of Balneology and Climatology. When the society was founded in 1895 he became an original member. He was elected a vice-president with a seat on the council in the following year, and four years later became president of the society. In 1906 he was made chairman of the council, an important office which is held for three years.

Dr. Bagshawe was a very regular attendant at the meetings of the society, and although he did not intervene much in the debates either upon the internal affairs of the society or upon the scientific questions brought forward, his opinions were always sought and listened to with the respect and attention to which his experience and large-mindedness entitled them. His unvarying courtesy of manner, which amounted to gentleness, concealed strong opinions to which he held with the tenacity of real conviction. In the social gatherings of the society Dr. Bagshawe was a well-known and warmly-welcomed figure.

Although he had sensibly aged in appearance during the last few years, he has passed from amongst his many friends with his faculties unimpaired and his heart still young. He will be remembered amongst us as an example of the best type of health resort practitioner, conscientious in his work, courteous in his manner, seeking a real brotherhood with the members of his profession, and true to the best standards of what is known as an English gentleman.

We regret to announce the death of Dr. Rafael Ulecia y Cardona, of Madrid, which took place on November 2nd. He was the founder, proprietor, and editor of the *Revista de Medecina y Cirugia Practicas*. To him the first dispensary for children suffering from diseases of the chest owes its establishment. Dr. Ulecia was a member of various scientific societies, a Grand Cross of the Civil Order of Beneficence, and a Commander of the Order of Isabel la Catolica.

We regret to announce the death of Geheimrat Wilhelm Ebstein, which took place on October 22nd, in his seventy-seventh year. He qualified as *Privatdozent* at Breslau in 1869, and was afterwards appointed professor and director of the medical Poliklinic of that university. In 1877 he was appointed professor of internal medicine at Goettingen, a position which he held till 1906. He was the author of a large treatise on practical medicine, and he wrote much on subjects connected with medical history. As a physician he was perhaps best known in connexion with the treatment of obesity.

Dr. Frank Harrison Low, who died recently from pneumonia after four days' illness, received his medical education at King's College, London, and the University of Aberdeen. He took the diploma of L.S.A. in 1875 and that of M.R.C.S.Eng. in 1876, in which year he also took the degrees of M.B., C.M.Aberd. Dr. Low took great interest in *x* ray and electric matters, and was medical officer of the *x*-ray department of the Polyclinic. He was a vice-president of the West London Medico-Chirurgical Society and honorary secretary of the Roentgen Society, as well as a member of the British Medical Association.

The Services.

ROYAL NAVY MEDICAL CLUB.

The annual dinner of the Royal Navy Medical Club was held at the Princes Restaurant, Piccadilly, on November 9th, and though not the first dinner of the Royal Navy medical officers, was the first held under the auspices of the newly formed club.

A very enjoyable evening was spent, which gave the large number of members who attended an opportunity of renewing old friendships and forming new ones. The president on this occasion was Surgeon-General Sir James Porter, K.C.B., Medical Director-General of the Navy, who in the course of his speech, after alluding to the advance made of late years by medical officers in their work and profession, referred in feeling terms to the loss sustained by the Navy through the recent deaths of Sir Herbert M. Ellis, K.C.B., and Deputy Surgeon-General T. J. Crowley. Between the toasts Mdlle. Anna Grondal contributed greatly to the enjoyment of the evening by her delightful singing.

The success of this meeting of the club warrants the hope, and indeed the expectation, that its popularity in future years will be well maintained.

The following members were present:

Surgeon-Generals: Sir James Porter, K.C.B., M.D. (Medical Director-General of the Navy), Sir T. D. Gimlette, K.C.B., A. W. May, C.B., Alex. J. J. Johnston, C. Pearson (ret.) *Deputy Surgeon-Generals:* J. J. Dennis, M.D., J. Lawrence Smith, M.V.O., M.B., George Welch (Deputy Director-General of Medical Department), A. G. Wildey, F. J. Lilly, F. W. Pryn. *Deputy Inspector-Generals:* J. D. Henwood (ret.), J. McC. Martin, D.S.O. (ret.), Theo. J. Preston (ret.). *Fleet-Surgeons:* L. E. Dartnell, R. F. Yeo, A. Gaskell, J. Menary, W. L. Martin, A. R. Bankhart, C.V.O., M.B., J. D. P. McNabb, A. E. Wightman, C. J. Mansfield, M. L. B. Rodd, J. H. Pead, E. C. Lomas, A. W. B. Livesay, P. W. Bassett-Smith, A. Kidd, W. H. Pope, W. R. Center, J. Moore, E. J. Finch, H. Spicer, M. H. Knapp, R. A. Fitch, H. W. Gordon Green, J. W. Philip, J. F. Hall, F. Fedarb, H. F. Iliewitz, J. J. Walsh, W. G. Axford, R. H. Browne, J. C. F. Whicher (ret.), R. Hill, F. H. Nimmo, R. D. Jameson, Alex. F. Harper. *Staff Surgeons:* Robert Hughes, Henry Hunt, R. W. G. Stewart, W. K. Hopkins, C. B. Fairbank, H. L. Geoghegan, A. F. Fleming, G. E. Macleod, John Martin, D. V. Lowndes, C. A. G. Phipps. *Surgeons:* G. B. Scott, A. G. V. French, G. W. M. Custance, G. P. Adshead.

SANITATION IN THE SCOTTISH COMMAND.

An interesting instruction has been issued with the Scottish Command Orders regarding the use of disinfectants. Complete disinfection of drains, gullies, traps, etc., is, it is stated, practically impossible, and the results of the use of disinfectants for this purpose is only deodorization and not disinfection. The need of deodorization indicates the existence of faulty conditions, which should be looked into and corrected, and reliance placed upon free flushing with water to remove decomposing deposits rather than upon surface disinfection or deodorization by chemical reagents. In future the use of disinfectants by units is forbidden, except upon the advice of a medical officer. Medical officers are forbidden to countersign indents of officers commanding units for disinfectants without previous reference to the sanitary officer of the command.

TERRITORIAL RECRUITS AND EYESIGHT TEST.

Special attention has been directed to the number of men, otherwise physically fit, who in the Glasgow Territorial units are rejected on account of defective vision. This cause of failure seems to be getting more common year by year.

SCOTTISH TERRITORIAL MEDICAL UNITS.

In his report on the training of the troops under his command during 1912, Lieutenant-General Sir Bruce Hamilton, Commander-in-Chief of the Scottish Command, says of the medical units: The Field Ambulances belonging to the Mounted Brigades and the Highland and Lowland Divisions trained independently. The technical training in these units is excellent, and they are in this respect thoroughly efficient and fit for the duties which would be required of them on mobilization. It is satisfactory to note the excellent effect of the numerous regimental tours and exercises which were held during the individual training season. Officers have now an increased knowledge of general tactics, and they are beginning to be able to adapt themselves to the tactical situation and to handle their units in accordance with its necessities. The General Hospitals trained at Aldershot, Portsmouth, Woolwich, and Shorncliffe have received satisfactory reports.

Universities and Colleges.

UNIVERSITY OF OXFORD.

The following degrees have been conferred:

D.M.—A. H. Hogarth, M. Davidson.

UNIVERSITY OF CAMBRIDGE.

The following degrees have been conferred:

M.D.—J. R. C. Canney, J. W.B. Bean.
M.B.,—J. C. John, W. L. Johnson.

UNIVERSITY OF LONDON.

Meeting of the Senate.

A meeting of the Senate was held on October 23rd.

Examiner in Chemistry.

Dr. H. R. Le Sueur, of St. Thomas's Hospital Medical School, was appointed Internal Examiner in Chemistry for the first examination for medical degrees, to be held in December, 1912, and July, 1913, and the second examination for medical degrees, Part I, to be held in March and July, 1913, in place of the late Dr. Wade.

Exemptions in Medicine for External Students.

Section 4 (ii) of the Exemptions in Medicine for External Students (Blue Book, September, 1912, page 211) was amended to read as follows:

> (ii) Registered Medical Practitioners who shall have passed the First Examination for Medical Degrees and the Second Examination for Medical Degrees, Part I, may proceed to the Second Examination for Medical Degrees, Part II, and the Third Examination for Medical Degrees without observing the intervals prescribed by the Regulations, on producing certificates that they have gone through the required course of training at any time previously; provided that candidates entitled to the foregoing exemption whose Matriculation, or exemption therefrom, dates from January in any year, shall not be admissible to the Third Examination for Medical Degrees before May of the next year but one ensuing; and similarly, candidates whose Matriculation, or exemption therefrom, dates from June or September, in any year shall not be admissible to the Third Examination for Medical Degrees before May of the third year ensuing.

Appointments.

Sir Alfred Pearce Gould, K.C.V.O., has been elected Dean of the Faculty of Medicine, and Dr. F. Taylor, Chairman of the Committee of Medical Members of the Senate.

Intercollegiate Courses in Physiology.

The Intercollegiate advanced courses in physiology for the Honours, B.Sc., Examination, arranged by University College, King's College, Bedford College, and the medical schools of St. Bartholomew's Hospital and Guy's Hospital are open without fee only to students of the participating colleges and schools. Students requiring further information regarding the courses should address their inquiries to the heads of the laboratories at which they will be delivered: University College (Professor Starling, F.R.S.), King's College (Professor Halliburton, F.R.S.), Bedford College and St. Bartholomew's Hospital (Dr. Edkins), Guy's Hospital (Dr. Pembrey).

Semon Lectures in Laryngology.

On January 22nd and 24th, 1913, at 5 p.m., two lectures under he Semon Lecture Trust will be delivered at University

College by Dr. Peter McBride, M.D., C.M. The subject of the lectures will be "Sir Felix Semon: his Work and its Influence on Laryngology." The forthcoming lectures will be the first to be delivered under the foundation established in May, 1911, by Sir Felix Semon, K.C.V.O., M.D., who transferred to the University for the foundation of a lectureship and medal in laryngology a sum of money amounting to £1,040. presented to him by the British laryngologists on his retirement from practice. Admission to the lecture will be free, by ticket obtainable from the Secretary of University College, Gower Street, W.C.

Lectures in Microscopy.

A course of six lectures on methods of illumination as applied to microscopy will be given at Charing Cross Hospital Medical School, Chandos Street, W.C., by Mr. J. E. Barnard, F.R.M.S., at 5 p.m. on Thursdays, beginning on November 14th.

M.D. Examination: University Medals.

In connexion with the M.D. examination for internal and external students in July, 1912, the university medal in Branch I (medicine) was awarded to Mr. Theodore S. Lukis, B.S., of St. Bartholomew's Hospital, and that in Branch IV (midwifery and diseases of women) to Mr. George Maxted, B.S., of Guy's Hospital.

UNIVERSITY OF MANCHESTER.

Chair of Pathology.

MR. A. E. BOYCOTT, B.Sc., M.A., M.D., B.Ch., has been appointed to the Chair of Pathology, vacant through the resignation of Professor Lorrain Smith on his appointment to the Chair of Pathology in the University of Edinburgh.

Dr. Boycott was elected to a classical scholarship at Oriel College, Oxford, in 1894. He became Fraser Research Scholar in 1899, graduated in medicine in the University of Oxford in 1902, and proceeded to the degree of M.D. in 1904. In 1903 he was elected a Fellow of Brasenose College in recognition of the researches in pathology carried out by him. Dr. Boycott has had a wide experience of teaching and of hospital work in connexion with pathology. He held the position of Gordon Lecturer in Pathology at Guy's Hospital, and afterwards was for two years on the staff of the Lister Institute of Preventive Medicine; he then returned to Guy's Hospital, being appointed lecturer in pathology there. He is well known for his pathological researches, and notably in the subject of ankylostomiasis in Cornwall, and the prevention of caisson disease.

Obstetrics and Gynaecology.

The following appointments have also been made: Lecturer in Obstetrics and Gynaecology, Mr. W. E. Fothergill, M.D., in addition to Mr. A. W. W. Lea, M.D., who already holds the position of lecturer in these subjects. Assistant Lecturer in the same subjects, Mr. W. Fletcher Shaw, M.D. Mr. W. K. Walls, M.B., M.R.C.S., L.R.C.P., has been appointed Lecturer in Clinical Obstetrics and Gynaecology.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

THE Honorary Secretary of the Society of Members of the Royal College of Surgeons of England (Dr. Sidney C. Lawrence) informs us that at the annual general meeting of Fellows and Members to be held at the Royal College of Surgeons of England, Lincoln's Inn Fields, W.C., on Thursday, November 21st, at 3 p.m., the following resolutions will be moved on behalf the above Society:

1. Sir Victor Horsley, F.R.C.S.Eng., will move: "That this twenty-eighth annual meeting of Fellows and Members again affirms the desirability of admitting Members to direct representation on the Council of the College, which, as now constituted, only represents those Members who also hold the Fellowship; and that it does so in order that the constitution of the Council of the Royal College of Surgeons of England shall be in keeping with modern ideas of true representation."

2. Dr. W. G. Dickinson (Honorary Secretary of the Society for fifteen years) will move: "That this meeting regrets that the Council has not called a special general meeting of the Fellows and Members to consider the National Insurance Act, 1911."

Medical News.

DR. WILLIAM LESLIE MACKENZIE, medical member of the Local Government Board for Scotland, has been appointed a member of the Royal Commission to Inquire into the Housing of the Industrial Population of Scotland.

AT the meeting of the Royal Meteorological Society at the Surveyors' Institution, Great George Street, Westminster, on Wednesday next, at 7.30 p.m., a paper will be read by Dr. H. R. Mill on the unprecedented East Anglian rainfall of August 26th, 1912.

A DISCUSSION on town planning in relation to the development of the South Yorkshire coalfield will be opened by Dr. A. B. Dunne, M.O.H., Doncaster Rural District. at a provincial sessional meeting of the Royal Sanitary Institute to be held at Doncaster on November 23rd, at 11 a.m.

IN response to an inquiry by the Medical Secretary of the British Medical Association, the publishers of the *Medical Who's Who* state that it is their intention to include in the publication the names of all members of the medical profession who make returns on the form sent. This statement removes the objection to the publication on the ground that it was a limited list.

AT the meeting of the Medico-Legal Society on Tuesday, November 26th, a discussion on legal responsibility in relation to some states of mental weakness will be introduced by Dr. Robert Jones. The meeting will take place at the house of the Medical Society of London, Chandos Street, London, W., at 8.30 p.m.

THE President (Sir Francis Champneys, Bart., M.D.) and the Council and Fellows of the Royal Society of Medicine will be at home to members of the profession at the new house of the society, 1, Wimpole Street, W., on November 27th, 28th, 29th, and 30th, at 8.30 p.m. There will be music and epidiascope and cinematograph demonstrations, and smoking will be allowed.

THE fifty-ninth session of the Royal Society of Arts will be opened on Wednesday evening by Lord Sanderson, Chairman of the Council, who will deliver an address and distribute the medals. On December 4th Mr. A. Zimmermann will describe the manufacture of sugar from wood and its economic importance, and on December 11th Dr. F. Mollwo Perkin will read a paper on synthetic rubber. The Cantor Lectures, to be delivered on December 2nd, 9th, and 16th by Mr. C. R. Darling, will deal with methods of economizing heat.

A MEETING of the Medico-Psychological Association of Great Britain and Ireland will be held at the house of the Medical Society of London, Chandos Street, London, W., on Tuesday, November 26th, under the presidency of Dr. J. G. Soutar. Papers will be read by Dr. Sidney Coupland on death certification and registration and by Drs. David Orr and R. G. Rows on the subacute and acute inflammatory reactions produced in the spinal cord by infection of its lymph stream. The members will dine together at the Café Monico at 7 p.m. on the same day.

ON Friday, November 29th, Professor Metchnikoff of the Pasteur Institute, Paris, will deliver the Lady Priestley Memorial lecture of the National Health Society at the house of the Royal Society of Medicine, 1, Wimpole Street, London, W. The subject of the lecture, which will be delivered in French and illustrated by lantern slides, is the warfare against tubercle. Tickets of admission can be obtained from the secretary of the society, 53, Berners Street, Oxford Street, W.

THE debate on sarcomata and myelomata of long bones, held by the Surgical Section of the Royal Society of Medicine on Tuesday last, will be continued on Tuesday next, November 19th, at 5.30 p.m. On this occasion the debate will be opened by Mr. George E. Gask, who will deal with prognosis, and Mr. Archibald Reid, who will discuss the subject from the *x*-ray point of view. Mr. S. G. Scott, Dr. Ironside Bruce, and others will also speak. We are requested to state that the numerous museum specimens, kindly lent by the various metropolitan museums, will remain on view until the next meeting.

IN place of the former electrical department at St. Bartholomew's Hospital, of which Dr. Lewis Jones was medical officer in charge, with Dr. Hugh Walsham as assistant medical officer, there have been created recently two separate departments. One of these will be devoted entirely to *x*-ray work, and Dr. Walsham was appointed medical officer in charge on October 7th. The second department will be occupied with the electro-therapeutic work, including ionization, diathermy, muscle testing, etc., and Dr. Cumberbatch, formerly chief assistant in the electrical department, has been appointed medical officer in charge. The electro-therapeutic department will remain in its present quarters, while the *x*-ray department will be moved elsewhere when more rooms can be obtained.

AT the meeting held at the Royal United Service Institution on November 13th, to promote the establishment of a suitable memorial to the late Admiral of the Fleet Sir Frederick Richard, a letter was read stating that the King "heartily sympathizes with the proposal, and will have much pleasure in subscribing to a fund for that purpose." Admiral of the Fleet Sir Gerard Noel, who was in the chair, said that Sir Frederick Richard had done more for the navy and his country than any naval man since Nelson. A resolution to institute a memorial was carried unanimously. Mr. Austen Chamberlain, in moving the resolution, suggested that, if the memorial were to be true to the spirit of the man and to reflect his character, it ought, if possible, to take some form which would be of assistance to brother officers of the great service whom in lifetime he delighted to honour and to whom he had left an imperishable example of noble devotion to a great and noble service.

Letters, Notes, and Answers.

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

COMMUNICATIONS respecting Editorial matters should be addressed to the Editor, 429, Strand, London, W.C.; those concerning business matters, advertisments, non-delivery of the JOURNAL, etc., should be addressed to the Office, 429, Strand, London, W.C.

MANUSCRIPTS FORWARDED TO THE OFFICE OF THIS JOURNAL CANNOT UNDER ANY CIRCUMSTANCES BE RETURNED.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

CORRESPONDENTS not answered are requested to look at the Notices to Correspondents of the following week.

TELEGRAPHIC ADDRESS.—The telegraphic address of the EDITOR of the BRITISH MEDICAL JOURNAL is *Aitiology, Westrand, London.* The telegraphic address of the BRITISH MEDICAL JOURNAL is *Articulate, Westrand, London.*

TELEPHONE (National):—
2631, Gerrard, EDITOR, BRITISH MEDICAL JOURNAL.
2630, Gerrard, BRITISH MEDICAL ASSOCIATION.
2634, Gerrard, MEDICAL SECRETARY.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

EGO asks for advice in the treatment of dilatation of the stomach with excessive free hydrochloric acid.

VERITAS asks for advice in the treatment of a patient, aged 60, who suffers from acute irritation of the prepuce and about one inch inside the urethra after straining at stool or when standing.

CAN ANGLO-SAXONS COLONIZE THE TROPICS?

DR. RICHARD ARTHUR (Parliament House, Sydney) asks for the opinion of those who have had experience of such places as the West Indies, British Guiana, Mauritius, Ceylon, and India as to whether there is any hope of the successful and permanent settlement of British-born or descended people in regions between Cancer and Capricorn. At the present time, he states, the subject of the colonization of the Northern Territory of Australia has come into the realm of practical politics, and there are many in the Commonwealth, including those in authority, who insist that only Anglo-Saxons, or, failing them, Northern Europeans—such as Danes and Swedes—should be encouraged to settle there, especially as the wives and children of the workers will have to remain continuously in the tropics.

INCOME TAX.

D.P.H. has recently been appointed to a more remunerative post after making his income-tax return at the place of his former appointment. He wishes to know whether he is bound to make a new return, and whether he is entitled to deduct removal expenses.

*** The income tax liability in the case of a person holding an office is on the amount of the salary or fees received for the financial year from April 6th (unless the office is merely incidental to the carrying on of a general practice). It will therefore be necessary for our correspondent to make a new return showing his salary from the date of commencement to April 5th, 1913, and he should at the same time point out that he requires any assessment that may have been made at his former address to be amended. Removal expenses are not allowed as a deduction.

ANSWERS.

TREATMENT OF CRAMP.

DR. L. LEON JAMES (Methven, New Zealand) writes: In reply to "R. T. N." (BRITISH MEDICAL JOURNAL, August 3rd, p. 284), personally, I have always found a dose, say, gr. x or xv of antypyrin one hour before going to bed effectually keep off the attacks of cramp. I have two patients at the moment taking such with the very greatest success, one 78 and the other 69. The latter tells me he has cramp even over the chest, arms, and body, as well as legs, and he used every night to think he would die; the former only had it in the legs, and kept his family up nearly the whole night bathing with hot water, but with this simple remedy both find almost absolute relief, so much so that lately both have more or less given up their dose, and merely take it occasionally after having taken during the day more than usual violent exercise, especially in climbing hills, for the younger of the two cases lives at the very foot of a big range (Mount Hute) necessitating climbing to get to, his sheep and cattle

CALOMEL IN DIARRHOEA.

DR. H. T. THORP, retired (Ipswich), writes: When I commenced practice in the early Fifties, diarrhoea was always extremely prevalent during the summer months; my routine practice was 4 grains of calomel combined with 1 grain of opium in the form of a pill, followed by chalk mixture and catechu, and I still believe in the same treatment.

LETTERS, NOTES, ETC.

THE District Manager of the Christian Science Committees on Publication for Great Britain and Ireland requests us to state that Mr. Rawson, the author of a book entitled, *Life Understood*, reviewed in the JOURNAL of November 2nd, is not a member of the Christian Science Church, and that his theories and conclusions are not accepted by members of that Church.

DR. OTTO MAY (Hampstead) writes: My attention has been drawn to an advertisement in the BRITISH MEDICAL JOURNAL of November 9th, inserted by the Prudential Assurance Company, and announcing my appointment to the post of "resident medical officer" to that company. May I point out that this description is an error? The post in question is that of *permanent* medical officer, not *resident* medical officer.

ANAPHYLAXIS AND REPEATED INJECTIONS OF SERUM.

MESSRS. MEISTER LUCIUS AND BRÜNING, LTD., London, E.C., write with regard to the note on anaphylaxis and repeated injections of serum as follows: We have been doing some research work on this subject at our bacteriological laboratories with a view of eliminating the risk of anaphylaxis after injections of diphtheria antitoxin, with the result that we are now immunizing cattle in order to obtain a diphtheria antitoxin containing proteins foreign to those obtained from horses immunized for the same purpose. This diphtheria antitoxin derived from cattle is intended for prophylactic injections against diphtheria. Should treatment, however, become necessary this would then be carried out with the ordinary antitoxin derived from horses, thus eliminating the risk of anaphylaxis due to the repetition of the absorption of the same protein material. With regard to tuberculin, we are now supplying an albumose-free tuberculin, thus eliminating the risk of anaphylaxis in this direction also.

LARGE DOSES OF CALOMEL IN DIARRHOEA.

DR. H. D. MCCULLOCH, (London), writes: Having had some experience with calomel in large doses, I was interested in the note contributed by Dr. W. E. Fellowes (October 19th). In the acute enteritis met with in the tropics in adults, with temperatures ranging between 103° and 106°, and highly offensive coffee-ground evacuations, I have given 20 grains and repeated it twice in the first twelve hours, with the most striking improvement all round, such as no other drug could have effected in the same time. In dysenteric diarrhoea, whether of the bacillary or amoebic type, with or without a rise of temperature, 12 grains of calomel repeated twice in the first twelve hours is a common and perfectly safe procedure. But whether constipation be present or absent, 1 grain of calomel given every three hours in twelve doses has, in my experience, resulted in pronounced salivation in adults; and I would expect the same result to follow this dosage in children, though they are known to be much more tolerant of calomel.

THE TREATMENT OF SYPHILIS.

DR. ARCHIBALD STEVENSON, (Sunderland) writes: I read with great interest Dr. Bain's communication in the issue of the JOURNAL of August 31st, p. 496, on the treatment of syphilis with mercury perchloride in full doses. I have myself had considerable experience of the treatment of this disease by the method which he recommends, and can fully bear out everything that he says in its favour. I have been much impressed by the results shown by the great improvement in the general health and the rapid disappearance of all signs of the disease. Another drug which I am fond of prescribing with mercury perchloride is tincture of steel in full doses. This combination is particularly useful when the patient is cachectic and run down. The patient soon assumes the appearance of robust health in place of the former anaemic and debilitated state.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Eight lines and under	0	4	0
Each additional line	0	0	6
A whole column	2	13	4
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An average line contains six words.

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